S. Hrg. 100-687 Pt. 3

# AGRICULTURE, RURAL DEVELOPMENT, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1989

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## HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

SECOND SESSION

ON

## H.R. 4784

AN ACT MAKING APPROPRIATIONS FOR RURAL DEVELOPMENT, AGRICULTURE, AND RELATED AGENCIES PROGRAMS FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1989, AND FOR OTHER PURPOSES

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## PART 3 (Pages 1–752)

NONDEPARTMENTAL WITNESSES

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# AGRICULTURE, RURAL DEVELOPMENT, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1989

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TUESDAY, APRIL 26, 1988

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
*Washington, DC.*

The subcommittee met at 9:35 a.m. in room SD–138, Dirksen Senate Office Building, Hon. Quentin N. Burdick (chairman) presiding.

Present: Senators Burdick, Sasser, Bumpers, Harkin, Cochran, and Grassley.

## NONDEPARTMENTAL WITNESSES

### SUBCOMMITTEE PROCEDURE

Senator HARKIN. The Subcommittee on Agriculture, Rural Development, and Related Agencies will come to order.

Today we will begin our hearings with nondepartmental witnesses. These hearings are a continuation of meetings the subcommittee has held on the fiscal year 1989 budget of the Department of Agriculture, Rural Development, and Related Agencies.

This is a very important part of the hearing process, because we will hear from members of the public on how the programs appropriated by this subcommittee affect their businesses, industries, and everyday lives.

I welcome all of the witnesses today, and I would like to remind you that your statements will be made a part of the record in full, and I would like to ask you to summarize them briefly within a period of about 5 minutes. We have a stopclock set up here, so if you could keep your eye on that and finish when the light turns red, it would be appreciated.

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Today we have as our leadoff witness our distinguished colleague the Honorable John Glenn, a U.S. Senator from the State of Ohio.

Senator Glenn, I personally am aware of your longstanding interest in the research being conducted by the Department of Agriculture. I know we have talked about it many times in the past, and I look forward to hearing your testimony. I appreciate your being here this morning.

## CONGRESSIONAL WITNESSES

### STATEMENT OF HON. JOHN GLENN, U.S. SENATOR FROM OHIO

**ACCOMPANIED BY:**
**KATHY CONNOLLY**
**SCOTT W. FANCHER**

Senator GLENN. Thank you very much, Mr. Chairman, and I will be as brief as I can be this morning. I will summarize my statement, and ask that my prepared statement be included in the record in its entirety.

I wanted to also compliment you this morning, Mr. Chairman, for introducing legislation that you and I have both worked on in the past to promote research into the modification of plants to develop nonfood products.

My statement begins with a short statement about the state of agriculture today and the balances and the imbalances in agricultural exports. It also discusses the need for bold, new programs.

One additional point that I want to mention today is that, of last year's $510 million research budget in the Department of Agriculture, only $6 million went into nonfood uses.

One thing that the United States of America is good at is basic research. The main emphasis in agricultural research in this country has been to put all of our efforts into production research. We have done this from time immemorial. We have been so successful that we now wind up with more surpluses than we know what to do with. Yet, we continue with $510 million a year devoted to the same old production research, while we pile the stockpiles up out along the railroad sidings in your State and mine and other places across this country.

Today, we know a great deal about how to convert these agricultural commodities into new nonfood uses of agricultural products. I hope we can begin to devote more money to research into new nonfood uses for our agricultural commodities.

While a limited amount of research is being done by private industry in this area, I have been frustrated in not being able to obtain figures on the actual research being done by the Agricultural Research Service. I understand that you have also had some difficulty in obtaining this information, as other members have had.

In 1985 I introduced a New Uses Research Program that was included in the 1985 farm bill. We said at that time that not less than $10 million per year should be earmarked for this research program. Yet no money has ever been put into the program. The authorization exists, and we have still never put any money into it, even though I think it is highly important, and I know that you, Mr. Chairman, share those views.

So, I would like to ask that $50 million be appropriated for fiscal year 1989 for this New Uses Research Program. That represents less than 10 percent of the total Agricultural Research Service budget.

For us to just continue building up more surpluses and continuing to develop new production techniques of hybrids and soil stabilization and new kinds of fertilizer that give us ever-increasing amounts of surpluses while neglecting new nonfood uses, seems to me to be a little bit ludicrous. We should take some of that money and put it into nonfood uses, so we can start making agricultural commodity-based plastics and the many other new nonfood products that can be produced from these surplus agricultural products. That just seems to me to be so fundamental. We have been so good at production research, let us put some of that money over into research on nonfood uses.

I know when I was a kid back home in Ohio, I believe that a good farm then produced about 45 to 48 bushels per acre of corn. We are so good in research in this area now, the average for Ohio last year was 137 bushels per acre. That has happened in my lifetime, and yet we go on doing agricultural research to produce more and more and more, while we don't know what to do with what we have.

We can develop new nonfood uses for our agricultural products. We are doing that with ethanol now. Twenty-four million bushels of corn a year was the capacity of a plant at South Point, OH, for ethanol production. That is just one example of what can be used. We have a whole series of other things that it can be used for. I list some of those in my statement.

The new Nonfood Uses Research Program encourages application of basic research in biology, chemistry, and physics to develop new uses. This addressed the whole spectrum of new nonfood products including plastics, building products, paper products, textiles, adhesives, and a whole series of things that we can do that I think can make better use of our agricultural products.

Last week I introduced a bill called the Agricultural Commodity-Based Plastics Development Act of 1988, that is a step toward developing markets for new nonfood uses of our Nation's agricultural commodities. We now can use cornstarch combined with plastics that biodegrades. Once it is in a landfill, it biodegrades and does not become a permanent part of the landscape as our plastics have up to now. This is an area that we must begin.

My main purpose in coming here this morning is to see if we can't finally get some money into this New Uses Research Program. I would like to see us put $50 million a year into it, and I hope you and the committee could support that.

Thank you very much.

Senator HARKIN. I want to thank you, Senator Glenn, for that fine testimony and for your long-time support for this.

On the 1985 farm bill, you said that you had a provision in there that said not less than $10 million was earmarked for this research program?

Senator GLENN. That was in the authorization. We never got the appropriations; that was the problem.

Senator HARKIN. I see.

I haven't taken a look at the bill you introduced last week, but I am anxious to do so. I might want to cosponsor the measure.

Senator GLENN. Yes; I introduced that. We wanted to get the bill in so that we could get it considered this year. I mentioned it to you on the floor the other day, and I will get you a copy of that today so you can look at it. I think you probably would be very interested in it.

Senator **Harkin**. I assure you, I have had trouble getting some of those figures from the Department of Agriculture. You can get broad types of information, but to get it down into exactly how much nonfood use research is done has always been difficult.

The last thing I'd like to mention is that I understand that Italy recently passed a national law that within a certain period of time—I don't know whether it is 2 years, 5 years, 3 years—they are going to prohibit the use of all plastic bags made out of petrochemicals. They will have to be biodegradable in a certain period of time. I don't know if you have heard of that, and I can't substantiate that.

Senator **Harkin**. Kathy?

Ms. **Connolly**. Senator, they have passed that law, and now they are implementing the legislation in Italy, and in a number of other countries in Europe, to ban plastics, because the garbage and the waste does not biodegrade.

Senator **Harkin**. So, other countries are doing it, too, right?

Ms. **Connolly**. Right, European countries.

Senator **Glenn**. I forgot to bring along with me this morning a couple of examples of this—shopping bags that are out of this biodegradable plastic that is being used now. Here is one now.

Senator **Harkin**. There you go. All right. You have got it right there. [Laughter.]

Senator **Glenn**. Yes; right there. It is a good plastic bag, but it biodegrades once it gets into a landfill someplace. It's made in Cincinnati out of cornstarch. And once they are disposed of, instead of becoming a permanent fixture in a landfill, they biodegrade.

So these are things that can be done right now.

Now, some of these processes are still a little bit more expensive, so we are looking for a little subsidy to make a transfer so this new technology can really take off. That is another function I think the Federal Government fills for the Nation as a whole that we could well put money into.

I would just like to see us get some of the basic research going in this area. I think it is so ludicrous that we put more money into production research and at the same time we don't do research on what we are going to use it for, just because the Department of Agriculture doesn't want to move in this area. I would think they would be champing at the bit to get going in some of these new areas.

Senator **Harkin**. Someone handed me this. This is one made in Iowa. There you go, Senator. All right. [Laughter.]

Senator Glenn, let me just ask you: I don't know whether I would term this a philosophical question, but why is it, do you think, that we are having so much trouble getting the Department of Agriculture to move in this direction? I mean, I have been beating my head against the wall here for a couple of years on this; we have had legislation; we just can't seem to move it. Why?

Senator **Glenn**. The only thing I can come up with is bureaucratic inertia, I guess. People are so comfortable in their own little niches, they are looking at their own little situations, and they have always dealt with a particular part of the fertilizer program in the Department of Agriculture, or a particular part of the hybrid program, and it is difficult to move people off dead center and into new areas. It is always that way.

But yet, we see stockpiles of grain building up so high we don't know what to do with them, and I would think they would be anxious to do new research in this area and find out other ways we can use agricultural commodities.

We are very good at research. We are so good at research, we have got all these surpluses. Now let us turn some of that research effort, just a part of it, for heaven's sake—$510 million a year we are putting in to figure out how we can do more surpluses, and that is a little bit ludicrous.

Senator HARKIN. Then we turn around and pay them to take land out of production.

Senator GLENN. What we ought to do someday is go over and hold a hearing over at the Department of Agriculture on this subject. Maybe that would get their attention.

Senator HARKIN. I asked one person the other day who is active in this field, Mr. Andreas, who is the head of ADM, if he had any figures on how much corn we might use if the plastic bags, garbage bags and the like, were made out of corn. He estimated a minimum of 300 million bushels a year.

Senator GLENN. Yes; somewhere in the neighborhood of 150 or 300 million. Those are the same figures that we got, and I don't think anybody really knows, because as we get into this and as the techniques get to where you could use more cornstarch in the plastics, which I am sure we could do with more research, then that goes up, then your use goes up.

But that is just one little part of it. I want to see us do the research so we can start using things across the board for a wide variety of products, and we don't even know what we can make out of it yet. We are still sitting out there piling it up, figuring, "Well, somebody will eat it, someplace, sometime," and people aren't eating it. So, let us figure out how we can use it.

Senator HARKIN. Well, Senator Glenn, I want to thank you very much. You are recognized internationally as a leader in pushing the frontiers of knowledge and the frontiers of what we can do as human beings. I think this is just another fine example of your lifelong effort to push those frontiers.

Senator GLENN. Thank you. I appreciate it. And I appreciate your help. It has been good to work with you on some of these research areas that I know you have such an interest in, too. Thank you much.

Senator HARKIN. Thank you, Senator Glenn.

[The statement follows:]

## STATEMENT OF SENATOR JOHN GLENN

MR. CHAIRMAN, IT IS A PLEASURE TO TESTIFY BEFORE YOUR SUBCOMMITTEE ON THE 1989 FISCAL YEAR APPROPRIATIONS FOR THE DEPARTMENT OF AGRICULTURE. BEFORE BEGINNING MY PREPARED REMARKS, LET ME COMMEND YOU AND THE AGRICULTURE SUBCOMMITTEE FOR YOUR LEADERSHIP IN MAINTAINING A STRONG FEDERAL COMMITMENT TO AGRICULTURE. [ I WOULD ESPECIALLY LIKE TO COMPLIMENT SENATOR HARKIN, WHO HAS INTRODUCED LEGISLATION TO PROMOTE RESEARCH INTO THE MODIFICATION OF PLANTS TO DEVELOP NEW NON-FOOD PRODUCTS. ]

MR. CHAIRMAN, THE 1980'S HAVE NOT BEEN KIND TO U.S. AGRICULTURE. PRICES HAVE DECLINED, FORCING INCOME LOWER. LAND VALUES HAVE DECLINED, FORCING THOUSANDS OF FARMERS OUT OF BUSINESS. UNFORTUNATELY, THIS SITUATION PROBABLY WILL NOT IMPROVE IN THE NEAR FUTURE. AS A RESULT, WE MUST PROVIDE SHORT TERM AID TO ADDRESS OUR CURRENT PROBLEMS AS WELL AS DEVISE A LONG TERM STRATEGY WHICH WILL RETURN PROFIT TO AGRICULTURE.

HISTORY TELLS US THAT FARM PROSPERITY OCCURS WHEN DEMAND FOR AGRICULTURAL COMMODITIES IS IN BALANCE WITH SUPPLY. BEGINNING IN THE MID 1950'S, AN EXPANDING EXPORT MARKET ABSORBED THE INCREASING SUPPLY OF COMMODITIES PRODUCED BY U.S. FARMERS. WHILE NOT EVERY YEAR WAS PROFITABLE FOR EVERY FARMER, ON BALANCE THE PERIOD BETWEEN 1955 AND 1980 WAS ONE OF ACCEPTABLE INCOME FOR THE FARM SECTOR AS A WHOLE.

SINCE 1981 FARM EXPORTS HAVE DECLINED FROM $44 BILLION TO AN ESTIMATED $32.5 BILLION IN 1987. DURING THIS SAME PERIOD DOMESTIC DEMAND FOR FOOD HAS INCREASED, BUT ONLY AT THE RELATIVELY SLOW RATE OF POPULATION GROWTH. EXTENSION OF THESE TRENDS YIELDS A SOBERING CONCLUSION -- TRADITIONAL DEMAND OUTLETS SHOW LITTLE PROMISE TO UTILIZE THE CURRENT SURPLUSES AND RESTORE PROSPERITY TO AMERICAN FARM FAMILIES.

THIS SHOULD CHALLENGE US TO DEVELOP BOLD, NEW PROGRAMS WHICH LOOK TO THE FUTURE WHILE EMBRACING THE LESSON FROM HISTORY THAT FARM PROSPERITY IS LED BY DEMAND. THAT IS WHY I BELIEVE THAT NEW NON-FOOD USES RESEARCH IS A COMMON SENSE APPROACH TO ADDRESSING THE CONTINUING SURPLUSES FACING AMERICANS IN THE 80'S.

NEW NON-FOOD USES FOR FARM AND FOREST PRODUCTS ARE NOT FAR OFF FANTASIES THAT WILL TAKE YEARS TO DEVELOP. RIGHT NOW, CORN STARCH IS USED NOT JUST IN PRODUCING ALCOHOL BUT ALSO IN MANUFACTURING PAPER PRODUCTS, BUILDING MATERIALS, TEXTILES, AND ADHESIVES.

AND, IN MY JUDGMENT, WE HAVE JUST BEGUN TO SCRATCH THE SURFACE. MANY PETROCHEMICALS CAN BE MADE FROM CARBOHYDRATES CONTAINED IN FOOD AND FEED GRAINS. EVEN GREATER POTENTIAL LIES IN DEVELOPING NEW CHEMICALS AND OTHER PRODUCTS THAT UTILIZE THE DESIRABLE PROPERTIES OF STARCH AND CELLULOSE.

THE NEW NON-FOOD USES RESEARCH PROGRAM ENCOURAGES THE APPLICATION OF BASIC RESEARCH IN BIOLOGY, CHEMISTRY, AND PHYSICS TO DEVELOP NEW USES FOR FARM AND FOREST PRODUCTS. ALTHOUGH SOME LIMITED RESEARCH IS BEING CONDUCTED BY USDA, LAND GRANT COLLEGES, AND PRIVATE INDUSTRY, THE AMOUNT SPENT IS NOT SUFFICIENT. FOR EXAMPLE, IN FISCAL YEAR 1987 ONLY $6 MILLION OUT OF A TOTAL AGRICULTURAL RESEARCH SERVICE BUDGET OF $510 MILLION WAS SPENT ON DEVELOPING NEW USES FOR FOOD AND FEED GRAINS. MY ATTEMPTS TO OBTAIN SIMILAR FIGURES FOR 1988 HAVE MET WITH FRUSTRATION. WHAT NUMBERS I HAVE OBTAINED FROM THE AGRICULTURAL RESEARCH SERVICE HAVE BEEN VAGUE AND UNSUBSTANTIATED. I UNDERSTAND THAT MEMBERS OF THE COMMITTEE HAVE HAD A SIMILAR EXPERIENCE. I HOPE THAT THIS CAN BE RESOLVED SOON, AS THIS IMBALANCE OF FUNDING IS ONE REASON THAT U.S. AGRICULTURE'S PRODUCTIVE CAPACITY HAS OUTSTRIPPED THE

DEMAND FOR ITS PRODUCTS. SUPPLY IS BEING CREATED WITHOUT THE MARKETS TO ABSORB IT.

TO CORRECT THIS IMBALANCE I URGE YOU TO RECOGNIZE THE POTENTIAL THAT EXISTS FOR NEW NON-FOOD USES FROM FOOD PRODUCTS. I WANT TO EMPHASIZE THAT WITH A CONCERTED EFFORT SOME OF THIS POTENTIAL CAN BE REALIZED IN THE NEAR FUTURE. HOWEVER, A STRONG FEDERAL COMMITMENT TO NEW USES RESEARCH MUST BE MADE. THIS CAN BE ACCOMPLISHED FIRST BY PROVIDING THE FUNDING AUTHORIZED IN THE NEW USES RESEARCH PROGRAM THAT I SUCCESSFULLY INCLUDED IN THE 1985 FARM BILL. NOT LESS THAN $10 MILLION PER YEAR WAS EARMARKED FOR THIS RESEARCH PROGRAM. I ASK THAT $50 MILLION BE APPROPRIATED IN FY 1989 FOR THIS NEW USES RESEARCH PROGRAM. THIS REPRESENTS LESS THAN 10 PERCENT OF THE TOTAL AGRICULTURAL RESEARCH SERVICE BUDGET.

I ALSO STRONGLY URGE YOU TO CLOSELY EXAMINE AGRICULTURAL RESEARCH SERVICE PRIORITIES WITH PARTICULAR ATTENTION TO THE BALANCE BETWEEN TRADITIONAL RESEARCH AND NEW NON-FOOD USES RESEARCH. IN FACT, I BELIEVE THAT THE AGRICULTURAL RESEARCH SERVICE SHOULD INITIATE A FORWARD-LOOKING, MULTI-YEAR PLAN TO SHIFT ITS EMPHASIS AWAY FROM PRODUCTION ORIENTED RESEARCH, AND TOWARD NEW USES RESEARCH. I BELIEVE THAT THIS IS THE ONLY WAY THAT WE CAN OBTAIN THE PROPER EMPHASIS ON NEW NON-FOOD USES FOR OUR AGRICULTURAL COMMODITIES.

IN ADDITION TO RESEARCH CONDUCTED BY THE AGRICULTURAL RESEARCH SERVICE AND OTHER AGENCIES, I BELIEVE THAT A SERIES OF LEGISLATIVE INITIATIVES IS NECESSARY TO ADDRESS THE PROBLEMS FACING AMERICAN AGRICULTURE TODAY. FOR THIS REASON, LAST WEEK I INTRODUCED THE "AGRICULTURAL COMMODITY-BASED PLASTICS DEVELOPMENT ACT OF 1988". THIS MEASURE IS AN IMPORTANT STEP TOWARD DEVELOPING MARKETS FOR NEW, NON-FOOD USES OF OUR NATION'S AGRICULTURAL COMMODITIES. IT ALSO ADDRESSES THE SERIOUS ENVIRONMENTAL PROBLEM WE FACE REGARDING THE DISPOSAL OF PLASTIC WASTE.

THE TECHNOLOGY EXISTS TODAY TO PRODUCE AGRICULTURAL COMMODITY-BASED PLASTIC PRODUCTS WHICH DEGRADE WHEN DISPOSED OF IN THE ENVIRONMENT. THESE ARE MADE BY COMBINING STARCH WITH CONVENTIONAL PLASTIC RESINS. THE STARCH USED IN THIS PROCESS IS MADE FROM A NATURAL RESOURCE THAT IS IN GREAT ABUNDANCE IN THIS COUNTRY, CORN AND OTHER GRAINS. A WIDE VARIETY OF ITEMS CAN BE PRODUCED USING THESE TECHNIQUES,INCLUDING PLASTIC PACKAGING, PLASTIC BAGS, AGRICULTURAL MULCH, MILK JUGS, DAIRY TUBS, MEAT TRAYS, DIAPER LINERS, FAST FOOD CONTAINERS, INDUSTRIAL CONTAINERS, AND PHARMACEUTICAL PACKAGING. USING DURABLE INJECTION MOLDING TECHNIQUES, SUCH DIVERSE PRODUCTS AS CHILDREN'S TOYS, OFFICE SUPPLIES, AND AUTOMOBILE COMPONENTS ARE ALSO FEASIBLE. WHEN DISPOSED OF IN AN ECOLOGICALLY ACTIVE ENVIRONMENT, SUCH AS A LANDFILL, MICROBES CONSUME THE STARCH, PERMITTING THE ITEM TO DEGRADE. IT HAS BEEN ESTIMATED THAT CORN STARCH BASED PLASTICS COULD REPLACE 30 TO 45 PERCENT OF THE LOW DENSITY POLYETHYLENE PLASTICS USED EACH YEAR, PRODUCING AN ADDITIONAL MARKET FOR APPROXIMATELY 112 MILLION BUSHELS OF CORN PER YEAR.

I WANT TO EMPHASIZE THAT THE PROBLEMS FACING AMERICAN AGRICULTURE ARE COMPLEX. THEY WILL NOT BE SOLVED QUICKLY, RATHER THEY REQUIRE A FORWARD-LOOKING STRATEGY TO HELP RETURN OUR AGRICULTURAL COMMUNITIES TO PROSPERITY. I BELIEVE THAT THIS BILL IS A PART OF THAT SOLUTION. I LOOK FORWARD TO YOUR SUPPORT FOR THE CONTINUED DEVELOPMENT OF NEW NON-FOOD USES FOR OUR AGRICULTURAL COMMODITIES AND INVITE MEMBERS OF THE COMMITTEE TO COSPONSOR THIS LEGISLATION.

MY THANKS TO THE COMMITTEE FOR THIS OPPORTUNITY TO TESTIFY TODAY.

## STATEMENT OF HON. KENT CONRAD, U.S. SENATOR FROM NORTH DAKOTA

Senator **Harkin**. Our next witness is the distinguished Senator from the great State of North Dakota, Senator Kent Conrad.

Senator Conrad, I welcome you to the subcommittee and look forward to your testimony.

Senator **Conrad**. Thank you, Senator Harkin.

I want to strongly echo what we just heard from Senator Glenn, and I want to add my voice to both his and yours.

I also want to publicly commend both of you for providing leadership in this area. I think if there is anything that is clear it is—in my role as chairman of the Subcommittee on Agricultural Research and Education—that you are headed in precisely the right direction.

We have had a series of hearings last year and this year which indicate, I think, without any reservation, that we need to divert some of our resources into the commercialization of the basic research at which we have excelled, and that there is an enormous opportunity laying there for agriculture and the rest of the country as well.

Mr. Chairman, I don't want to take much of the committee's time, but I would like to raise several issues concerning research funding priorities which are important to agriculture in both North Dakota and the Nation.

First, however, I believe we must put the current agricultural situation into perspective. Despite all of the headlines we have seen in the last 6 months proclaiming the health of agriculture, you and I know that that is not quite the story.

We have heard much talk about record levels of farm income, and I think several facts need to be understood:

After adjusting for inflation, and some of those who have been talking about record levels of farm income have forgotten about inflation, but if you adjust for inflation, net cash farm income in 1987 was $10 billion below the average for the 1970's and several billion dollars below the 1960's. This tells quite a different story than what we have seen in the headlines as a result of talk coming from those who are in positions of authority in agriculture today.

In real dollars, cash receipts from the market for food grains, feed grains, and oil seeds stood at a 25-year low in 1987, and CCC loans are included in that calculation of cash receipts.

The only long-term forecast, Mr. Chairman, that we have of agricultural income in cash receipts—and this is from the prestigious Food and Agriculture Policy Institute at the University of Missouri and your own Iowa State University—indicates that cash receipts from the market will remain at this 25-year low for the next 10 years, through 1996.

In addition, because farm costs will rise over the next 10 years, net farm income will decline a full 50 percent by 1996. Again, this is according to the Food and Agriculture Policy Institute at the University of Missouri and Iowa State University. Sobering statistics, Mr. Chairman.

The fact is that agriculture is more dependent now upon the Government than at any time in the past; and the future of farming, particularly family farming, is more precarious now than at any time in the last half century.

We face an extremely serious challenge in agriculture, but we can change the future and change the direction from decline to prosperity.

To make that change, we must more effectively focus our limited research dollars.

First, it is critically important that more of our existing research dollars go to the development of new nonfood, nonfeed uses for agricultural crops.

Again, I want to publicly commend and praise both Senator Harkin, the acting chairman, and Senator Glenn, who just testified, for their foresight and leadership on this issue.

Developing new industries which use agricultural crops for nonfood, nonfeed products has a very large economic growth multiplier. Not only will new uses industries generate growth in farming and the small businesses which supply them, new uses industries will also create economic growth and jobs in manufacturing and processing.

Second, Mr. Chairman, more research needs to be directed at farm profitability rather than farm productivity. Farmers need to be able to reduce their input costs.

Third, Mr. Chairman, it is critical that alternative and minor crops receive adequate research attention. We all know the success story of soybeans, a rather minor crop 30 years ago. Today, we know that oats is a minor crop, that recent research indicates that oatmeal in human diets reduces cholesterol levels. For the health conscious society, we believe the rather small oat crop, only 7 million acres harvested in 1986, is likely to become a much more significant crop.

Other minor crops such as barley, canola, and sunflowers can also become more important. But more research is needed on their production and nutritional qualities.

Again, Mr. Chairman, I want to commend you for being a leader in this area. The labeling legislation which you have pushed would help develop the market in these areas.

Fourth, it is important that research into pest and weed control be focused on biocontrols and biodegradable chemical controls.

Recent research has led to the development of food crops immune to certain pests. Both farmers and the public are concerned about the safety of our environment. Evidence of that concern is reflected in the Committee on Agriculture's recent reauthorization of the Federal Insecticide, Fungicide, and Rodenticide Act to strengthen the review process for agricultural chemicals.

Finally, Mr. Chairman, I think it is critically important that the Congress continue to have access to sophisticated, independent economic analysis of the farm economy.

The Department of Agriculture no longer provides long-term detailed analysis of the type I cited in this testimony. In particular, I would like to cite the excellent work of the Food and Agricultural Policy Research Institute in providing detailed long-term analysis of numerous policy options, including our present farm program.

Mr. Chairman, I would just like to conclude with one other note: The Soil Conservation Service at this point has mapped only 4 percent—4 percent—of this Nation's wetlands.

With the advent in the 1985 farm bill of the swampbuster legislation, we believe that is going to create serious confusion and consternation in the field in the months ahead.

Mr. Chairman, I would urge this committee to take into account the fact that SCS, because of limited resources, has not been able to map the vast majority of this Nation's wetlands. That is a responsibility that they have been given. They unfortunately have not been given the resources with which to carry out that responsibility, and we would just like to draw that to the committee's attention.

Thank you, Mr. Chairman. I would be happy to answer any questions.

Senator HARKIN. Senator Conrad, thank you very much for your testimony and for taking the time to be here today, and for your interest in this area.

Of course, being a neighbor of yours out in the Midwest, I've long been aware of your leadership role in North Dakota in agriculture. In 1 year and 5 months you have become a national leader in this area, and I appreciate very much the strong, strong support you have given here in the Senate to these items.

I might also add, it is interesting to note that you said we need the kind of independent research we are getting from FAPRI. With a bit of pleasure, I note that the administration for the past few years has been trying to zero that out and close that down, but we have kept it alive and strong, and it is in good shape.

Again, I am not saying that FAPRI is always right, but we need that kind of strong independent analysis out there, devoid from the Department of Agriculture types of analysis.

I had heard your figures before—this is the first time I have seen them in print—that in real dollars the cash receipts from the market for food, feed, and oil seeds stood at a 25-year low last year, including CCC loans. That is something that not very many people understand.

Senator CONRAD. Well, Mr. Chairman, we have had a barrage of publicity from the Department, frankly, that repeats over and over that we have record cash income. What they have failed to do is take into account inflation. And, Mr. Chairman, frankly, farmers in my State resent the suggestion that they are doing better than they have ever done before, because they know better, just like your farmers know better.

The fact is, things are very difficult in the countryside, and there is a high level of anxiety. And that is the story, the accurate story, the honest story, that ought to be reported and ought to be going out from Washington. Too often we get a different story.

Senator HARKIN. In last year's appropriations bill, Senator Burdick included a separate line item for low input agriculture. It started out at $9 million and was reduced to $3.9 million. How do you feel? Do you feel that would be something else that we might want to try again this year as a subcommittee? Should we do that again?

Senator **Conrad**. I would strongly support that. We just held a hearing, a 3-hour hearing, on low input agriculture, and the opportunities there are very impressive.

I must say we had a farmer from my State who is now farming 3,000 acres without any chemical inputs. He has made the transition over a number of years, and has proven to be very successful. Now, I think we both know that that is not going to be the model; we are going to have chemicals in our agricultural system for probably as long as you or I will be serving in public life.

But I also believe we desperately need to continue the research effort in that area.

At the hearing we heard many, many positive stories about what is occurring in low input agriculture as a result of what you did here last year, and I think we ought to continue those efforts.

Senator **Harkin**. One last thing. I don't want to take too much of your time; I know you have to go, too.

Not taking away from what Senator Glenn said and my own interest in basic research, it seems that the one area in which we have really been lax is in filling the gap between basic research and applicability.

We do a lot of good basic research, then we find others picking it up and putting it into some kind of marketable item. I am just always looking for ideas and concepts of how to close that gap. How do we close that gap in this country?

Senator **Conrad**. I am so glad you asked that question.

Senator **Harkin**. All right.

Senator **Conrad**. I have just put together a bill based on the hearings that we have had in my subcommittee in the last 2 years called the Agricultural Research Commercialization Act.

This act would create the Agricultural Research Commercialization Corporation. Very frankly, it is the result of a commission that was formed a number of years ago to look into precisely the problem that you described, that gap between the extremely successful job we do in basic research and the much less successful job we do in commercializing that research.

This commission, that was bipartisan, came up with the idea that what we need desperately in this country is some mechanism to fill the gap.

Unfortunately, our companies have a very difficult time putting the resources into commercializing basic research. The Government does a tremendous job at supporting the basic research. So, we have that gap. What they have urged that we create is this commercialization corporation.

The legislation that we will be introducing either this week or next provides the money to fund that kind of commercialization corporation, and we are receiving tremendous support from the bipartisan base in the agricultural community for that type of legislation.

I would urge the committee to take a look at that.

Senator **Harkin**. I would like to take a look at it, too. Personally, it sounds like a good marriage with the bill that I introduced last year, which is more of a basic research bill; but I have never been able to figure out how you get beyond that. So I would like to take a look at it.

Senator **Conrad**. It is designed to be a bridge precisely between the effort that you made last year, which I supported and which I think was precisely the right way to go, and bridging this gap a bit further.

Thank you, Mr. Chairman.

Senator **Harkin**. Thank you very much, Senator Conrad.

[The statement follows:]

## STATEMENT OF SENATOR CONRAD

### "Setting Agricultural Research Priorities"

It is a pleasure to be here. I would like to commend Senator Burdick for holding these hearings.

I do not wish to take much of the Committee's time, but I would like to raise some issues concerning research funding priorities which are important to agriculture in both to North Dakota and the nation.

First, however, I believe we must put the current agricultural situation in perspective. In spite of all the talk we hear about the record level of farm income, several facts need to be understood.

> After adjusting for inflation, net cash farm income in 1987 was $10 billion below the average for the 1970s.
>
> In real dollars, cash receipts from the market for food grains, feed grains, and oilseeds stood at a 25 year low in 1987. (CCC loans are included in cash receipts.)
>
> The only long-term forecast we have of agricultural income and cash receipts (from the prestigious Food and Agricultural Policy Institute at the University of Missouri and Iowa State University) indicates that cash receipts from the market will remain at this 25 year low for the next 10 years--through 1996.
>
> In addition, because farm costs will rise over the next 10 years, net farm income will decline a full 50% by 1996.

The fact is that agriculture is more dependent on the government than at any time in the past, and the future of farming, particularly family farming is more precarious than at any time in the last half-century.

We face an extremely serious challenge in agriculture. But, we can change the future and change the direction from decline to prosperity. To make that change, we must more effectively focus our limited research dollars.

First, it is critically important that more of our existing research dollars go to the development of new, nonfood, nonfeed uses for agricultural crops. I would like to commend Senators Harkin and Glenn for their foresight and leadership on this issue. Developing new industries which use agricultural crops for nonfood, nonfeed products has a very large economic growth multiplier. Not only will "new uses" industries generate growth in farming and the small businesses which supply them, "new uses" industries will also create economic growth and jobs in manufacturing and processing.

Second, more research needs to be directed at farm profitability rather than farm productivity. Farmers need to be able to reduce their input costs. And, to protect our environment, the nation needs to reduce dependence on non-biodegradeable chemical inputs.

Third, it is critical that alternative and minor crops receive adequate research attention. We all know the success story of soybeans--a rather minor crop 30 years ago. Today, we know that oats is a minor crop, but recent research indicates that oatmeal in human diets reduces cholesterol levels. The rather small oat crop (only 7 million acres harvested in 1986), is likely to become a much more significant crop. Other minor crops such as barley, canola, and sunflowers can also become more important, but more research is needed on their production and nutritional qualities.

Fourth, it is important that research into pest and weed control be focused on bio-controls and biodegradeable chemical controls. Recent research has led to the development of food crops immune to certain pests. Both farmers and the public are concerned about the safety of our environment. Evidence of that concern is reflected in the Committee on Agriculture's recent reauthorization of the Federal Insecticide, Fungicide, and Rodenticide Act to strengthen the review process for agricultural chemicals.

Finally, I think it is critically important that the Congress continue to have access to sophisticated, independent economic analysis of the farm economy. The Department of Agriculture no longer provides long-term, detailed analysis of the type I cited in this testimony. In particular, I would like to cite the excellent work of the Food and Agricultural Policy Research Institute in providing detailed long-term analysis of numerous policy options including our present farm program.

### STATEMENT OF HON. J. JAMES EXON, U.S. SENATOR FROM NEBRASKA

Senator HARKIN. We are also honored to have with us this morning my distinguished neighbor from the West, the Senior Senator from the great State of Nebraska, Senator Exon. Although Senator Exon does not serve on the Agriculture Committee he is recognized as one of the top two or three voices, strong voices, in agriculture in the U.S. Congress. He has provided great leadership in all areas of agriculture, and for that I am most appreciative. I am grateful for his work with me when I first came here to the Senate, and for his work on the 1985 farm bill and on many other important pieces of legislation. He made sure that our farmers in the Midwest were well represented.

So, it is indeed an honor to have you here this morning, Senator Exon.

Senator EXON. Mr. Chairman, thank you very much.

I am delighted that you are accommodating my schedule today. Would it be inappropriate if I asked my friend Bob Daugherty, whom I am going to introduce, to sit at the table with me? Or what is the schedule of the committee?

Senator HARKIN. We are at your pleasure, Senator Exon. Why don't you have Mr. Daugherty come up and join you?

Senator EXON. Mr. Daugherty, would you come up, please?

Mr. Chairman, I appreciate very much your usual thoughtful consideration as a stalwart of all stalwarts in agriculture, and this is an agricultural matter that Bob Daugherty is here to talk about this morning.

He is one of those Nebraskans who has been involved in key projects that have been the greatest benefit to agriculture.

Mr. Chairman and members of the committee, it is a pleasure, indeed a pleasure, for me to present to you this morning a very distinguished Nebraskan.

I have known Bob Daugherty for many, many years and could go on and on and on about his accomplishments for the good of agriculture in general and the State of Nebraska in particular.

Just let me say that his ingenuity and business prowess has brought his company, Valmont Industries, from humble beginnings to a $450 million corporation that it is today.

Valmont is known throughout the world as a leading supplier—as the chairman knows—of irrigation equipment and has, in recent years, gained expertise in supplying a number of other products and services generally related closely with agriculture.

I want to tell you, Mr. Chairman, that not only is he an outstanding businessman but he is an outstanding citizen, and he is extremely well thought of in Nebraska.

He has accomplished all of this, Mr. Chairman, while being a Republican, which I think is quite significant. [Laughter.]

But he has overcome those disadvantages and still been successful. [Laughter.]

Bob will be talking today about Valmont's efforts to bring the Stirling engine into the marketplace. And I know that the chairman is another one who has been very much interested in this from its very beginnings, and we have appreciated very much your help and understanding.

Having seen with my own eyes Valmont's test engine in operation, I am a strong supporter of his effort. I hope after hearing his remarks that you will share our enthusiasm with this engine, which could provide so many benefits for rural America in agriculture.

Without further delay, Mr. Chairman, and with your approval, I would just like to present Mr. Daugherty for his presentation at this time.

Senator **HARKIN**. Well, Senator Exon, you are very kind to come here and do that. I just want you to know that I had the privilege of meeting Mr. Daugherty for the first time just a little over a week or so ago; but as I said to him then, and as I say to both of you now, his reputation far exceeded him.

First as a Congressman from Iowa and later as a Senator and someone always interested in agriculture, I noted Mr. Daugherty's rise in Nebraska, what he had done, how he built his businesses up, and it really is one of the great American stories of this century.

We are just proud to have you here and privileged to have you here, Mr. Daugherty. As you know, I too have had a long support for the Stirling engine, going back to my days in the House of Representatives when I chaired the Aviation Subcommittee on the Science and Technology Committee.

I really believe it can have great benefits for our country—environmentally sound, fuel efficient, it can use a variety of different fuels; again, some of the things we are talking about here today. And that I think is the most important, that it can use a wide variety of fuels.

I got up this morning, turned on the television, and there is the news this morning about "OPEC Meeting," with non-OPEC, going to jack up the price of oil again. I am saying, "We need other sources to do the things that we have to do in this country."

So I appreciate your involvement in this area and your support for it. I think it says something when a person, an entrepreneur like you who has built up a successful business, has gone as far as you have gone. If you see something in this, then that says something to a public official like me. So I appreciate your being here, and I look forward to your testimony.

## VALMONT INDUSTRIES, INC.

### STATEMENT OF ROBERT B. DAUGHERTY, CHAIRMAN OF THE BOARD

Mr. **DAUGHERTY**. Thank you very much, Mr. Chairman. Thank you very much, Senator Exon, Senator Grassley.

It gives me a great deal of pleasure to be here today. Frankly, with the introduction and the chairman's remarks, I am not sure that I need to testify very long. [Laughter.]

But in any event, I would like to comment very briefly on what we are attempting to do with our Stirling engine project, which has the potential of saving American farmers millions of dollars in the future if we indeed can be successful.

I am here today to request $4 million in appropriations to allow us to continue with the necessary research and development funds to make our solid fuel Stirling engine a realization.

I would also like to say, Mr. Chairman, that I come here with considerable regret, for the simple reason that we would much prefer to continue this program using our own funds. However, it has gotten to the place where we have invested, for our relatively small company, approximately $9 million, and in order to bring it to completion and fruition in a timely manner, we need additional funding, and that is the reason that we are here.

One of the things that is so fascinating about the Stirling engine concept that we are working on is that it goes back to a principle that was originally designed and patented in about the 1815 time period by a Scottish Presbyterian minister by the name of Robert Stirling.

Stirling's original engine was a simple one: it used the expansion of heated air instead of heated water or steam to drive a piston. But with the application of modern technology it is possible to have a Stirling engine—that, incidentally, is an external combustion engine as opposed to what is familiar in our automobile, as an example, an internal combustion engine—and as a result of that it has the capability of burning a wide variety of fuels, fuels, I might add, that we can produce in the United States at an advantageous cost.

As an example, some of the fuels that we have used in our test engines include such crop residues as rice hulls, wood chips, and things like that, in addition to coal. We turn those fuels into usable shaft horsepower.

We got into this program about 9 years ago, as a result of the escalating prices of fuel oil, and we could see that our customers that pump irrigation water were substantially disadvantaged, with the cost of their fuels, diesel fuels as an example, rising from about 20 cents a gallon to well over $1 a gallon.

If indeed we can be successful with our research project, we would hope that by using locally produced fuels we could bring those costs back down to what they were in the seventies.

You indicated, Mr. Chairman, that OPEC is having a meeting now to discuss what we should pay for fuel in the next go-around. I think we are all rather certain that the decisions that they come to will not be to our benefit.

Another thing: As a result of producing our own fuel for powering agricultural equipment such as irrigation pumps, we can substantially impact the balance of payments.

In just irrigation water pumping alone, American agriculture consumes the equivalent of 1½ billion gallons of diesel fuel per year. You can use whatever price you want on that, but if it were $1 a gallon— which it is not today, but at one time it was—why, that could help our balance of payments in a very, very significant way, to say nothing of the opportunity of reducing our cost of operations for American farmers.

In conclusion—and I don't want to take a lot of your time—I indicated that we have spent a substantial sum of our own money on this project. We would continue to do that. But it is our thinking that, in order to make this idea and concept available to the American farmer, we need to do it sooner rather than later.

So that really is our purpose. We are requesting $4 million, Mr. Chairman. And without taking any more of your time, I would be pleased to answer any of your questions, if I may.

Thank you, sir.

Senator **Exon**. Mr. Chairman, if I might just add an emphasis to a fact that I think is somewhat unique, here is a businessman who has proven successful in his own field; here is a businessman who has never come to Congress before for any help at all; here is a businessman who has invested $9 million of his company's money in this project. He has convinced many of us that this is good for America as a whole. I am convinced that it is, and with the research projects that we have spent an awful lot of money on, far, far more than what he is requesting here today, I just think this would be an excellent investment for the future of agriculture and for the overall scope of our becoming more self sufficient in energy, I just want to echo the good words and comments by Mr. Daugherty.

Senator **Harkin**. Thank you very much, Senator Exon.

Mr. Daugherty, thank you for your fine testimony and for taking the time to be here today.

I just have a couple of questions, just for the record, that I would like to just propound to you:

What financial benefits might farmers see from the introduction of your solid fuel using equipment into their operations? What financial benefits would accrue to farmers?

Mr. **Daugherty**. Well, as an example, I have indicated that our farmers use in excess of a billion and a half gallons of diesel fuel a year to pump irrigation water.

Depending on our success and our ability to convert from diesel fuel or whatever means they are using to a system that would burn coal or rice hulls or wood chips or whatever, and also depending upon what price you would place on these imported liquid fuels, the savings could amount to a very, very substantial amount: I would estimate anywhere from $300 million to maybe as much as $1 billion annually.

Senator **Harkin**. What will happen if the Government doesn't provide these funds?

Mr. **Daugherty**. Well, I guess what would happen is that we wouldn't be able to continue to develop this concept in a timely fashion that would really benefit the economy, not only of agriculture but indeed the entire Nation.

So we are hopeful that you will favorably consider our request.

Senator **Harkin**. Thank you, Mr. Daugherty.

Senator Grassley.

Senator **Grassley**. I don't have any questions on this, but I compliment you on your testimony and hope that we can do something along that line.

Mr. **Daugherty**. Thank you very much, Senator.

Senator **Harkin**. Again, Mr. Daugherty, thank you very much. I know you're aware of my interest in this area. We are going to do everything we can to see that we keep this technology going. It is just something we just cannot afford to let up on, especially at this point in time.

We have become so lax now, thinking that the price of gasoline has leveled off. It has gone down, and people don't worry about it now. But it is my feeling that the next oil crunch is coming sometime. I think those people meeting this morning, and the OPEC people, like you say, are going to make a decision which will not be in our favor.

Mr. **DAUGHERTY**. Thank you, Mr. Chairman.

Senator **HARKIN**. Thank you, Mr. Daugherty.

[The statement follows:]

## STATEMENT OF ROBERT B. DAUGHERTY

Mr. Chairman and members of the Subcommittee, my name is Robert B. Daugherty and I am Chairman of the Board of Directors of Valmont Industries, Inc. of Valley, Nebraska. I am here today to request four million dollars in appropriations to allow for the necessary research and development funds to help make Solid Fuel Stirling Engines a realistic option for America's farmers.

Mr. Chairman, it is with some considerable regret that I come before you today, because if I could develop this product with my own corporate funds, in a reasonable amount of time, I would do so. I have never asked the government for financial support for any other Valmont project, and the primary reason I am before you today is that without your help, our country will not have this promising and beneficial option in the foreseeable future. There are many projected benefits from the successful completion and introduction of the Solid Fueled (External Combustion) Stirling Engine concept not only in our agricultural markets for water pumping and power generation, but also, as an export product for use as a power generator in underdeveloped areas of the world.

Mr. Chairman, when I joined Valmont in 1946, it had about sixty people and specialized in grain elevator production for local farmers. By paying close attention to the needs of the agricultural community, and serving farmers to the best of our ability, we have grown today to a company with $450 million in sales and employing 3,700 people with a world wide distribution and service network. We accomplished this growth largely through innovating much needed and highly beneficial farm production equipment such as center pivot irrigation machines, other advanced irrigation equipment, low cost tubular steel, and farm computer systems as well as other products.

It is interesting to see the emphasis, now, on "Low Input Agriculture". We have called this "enhanced farm productivity" for years, and have built our business around helping farmers with innovations supporting this need. We are, today, the worldwide leader in the manufacture and distribution of mechanized irrigation systems that have, over the years, enabled farmers to vastly enhance the productivity of their operations and have allowed hundreds of thousands of acres of previously arid land to be productive.

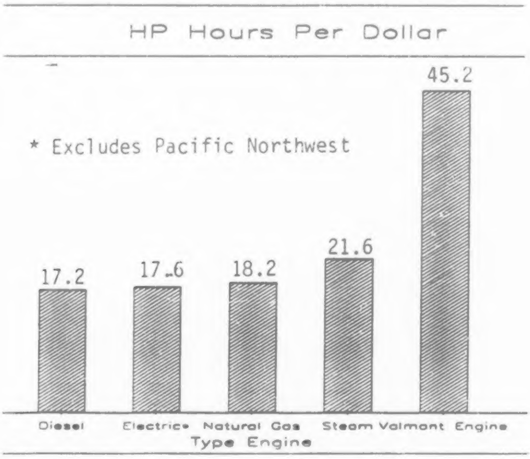
Low Input Agriculture, or enhanced farm productivity, is what this project is all about. In 1980, we at Valmont saw the very negative effects that rising fuel prices were causing in the farm community. We undertook, with our own funds, a study to determine what could be done about this dramatically negative occurrence.

We concluded from our study that the best approach would be a new high technology Stirling Engine System capable of burning rough solid fuels such as coal and biomass. Fuels burn in a fluidized bed combustor outside the precision environment of the engine. This approach eliminates premature engine wear and the need for expensive fuel refinement or gasification. The system was intended as a stand alone unit to provide clean, economical power for many agricultural and small business applications. Valmont has built a "concept system" that has been operated to demonstrate feasibility. Projections indicate a fuel efficiency of about 23%, much better than can be obtained from other farm size means of power generation. Data indicates that emissions are competitive with diesel engine requirements. In addition the Valmont Power System is ideally suited to the "packaged system" concept which greatly reduces engineering and on-site installation costs. By avoiding the use of steam and its attendant complications, the Valmont Power System becomes economical as an engine in smaller sizes that can be located close to the fuel supply or the point of power use, thus saving transportation and transmission losses. This ability to be economic in smaller sizes eliminates what the Office of Technology Assessment has reported to be a major impediment to expanded use of biomass fuels.

In addition to coal, which is available in large quantities, the Valmont concept system has successfully burned wood and rice hulls; examples of biomass fuels with considerable underdeveloped potential. The Office of Technology Assessment estimates that annual biomass resources total about 5.1 quads, of which only about 1.5 quads, mostly wood, are utilized.

Valmont development activities have proceeded about in parallel with Department of Energy development of the Stirling engine, fluidized bed and heat transfer technologies - with their investment being well in excess of one hundred million dollars of public monies. Our work has shown that these technologies can be combined in this new way to efficiently produce shaft power from rough fuels.

The following is a projected operating cost comparison of Valmont's "concept system" using rough fuels such as coal at $40.00 per ton or wood at $30.00 per ton.



By introducing the latest technologies in the field of the Stirling engine, fluidized bed and heat transfer we expect that the power delivery of the Valmont concept will be about 45.2 horsepower hours per dollar. At the same time, estimates indicate that the engine system in the 100 horsepower size can be installed at a capital cost of about $300.00 per horsepower.

We see the main applications being in the field of water pumping for agricultural uses and cogeneration or power supply for light commercial and industrial business uses. A major benefit would evolve from providing an economical method to displace and conserve a significant quantity of premium cost fuel.

A market analysis of the agricultural irrigation applications indicates that the Valmont energy system could conserve premium fuel valued at approximately 1.60 billion dollars per year. This savings would be realized by substituting rough fuel for premium fuel in just under 200,000 engines. This is an average fuel substitution of $8,200 per engine. Once capital and maintenance charges have been included, the net savings would exceed $230,000,000 per year or approximately $1,200 per engine system adopted. Fuels displaced on a dollar basis are primarily natural gas 23%, diesel 23%, and electric 54%.

Commercial and small businesses have applications such as cogeneration and other heat and power uses; for instance metallurgical heat treating, drying operations, the power for fans and compressors and the like are estimated to use between 1.5 and 3.0 quads of premium energy. This is an emerging market for alternate fuels, much of which can be converted as technologies and infrastructure become available. The Valmont concept is ideal for these uses because of its efficiency and versatility. That is, its ability to burn locally available fuels, its ability to be efficient in small size units and the ability to tailor the heat/power ratio to meet the needs of the process.

Another large potential use is to supply both power and heat for product drying and seasoning in the lumbering industry. In this case the fuel would be the slash left behind from the timber cutting operation, a fuel source that is now largely wasted.

The Valmont concept power system would also be highly beneficial to Third World countries to meet their needs for small power systems in areas not connected to major power grids as recognized by the U.S. Agency for International Development. In addition to the benefits to the user in the international market, export and balance of payments opportunities are provided for the United States.

There are two main benefits to the implementation of the technologies of this program. One benefit is that America's energy security is enhanced by enabling the local use of coal and other rough indigenous fuels such as wood waste. Even if America's energy security is not directly threatened today, we must plan for the future.

The second benefit is that this system provides an economical method to displace and conserve a significant quantity of premium fuel. In just the timber industry alone, two quads of energy are left behind each year in the slash. This is energy that could be used instead of wasted. The system discussed today can convert this wasted material into clean, efficient energy saving premium fuels for other applications.

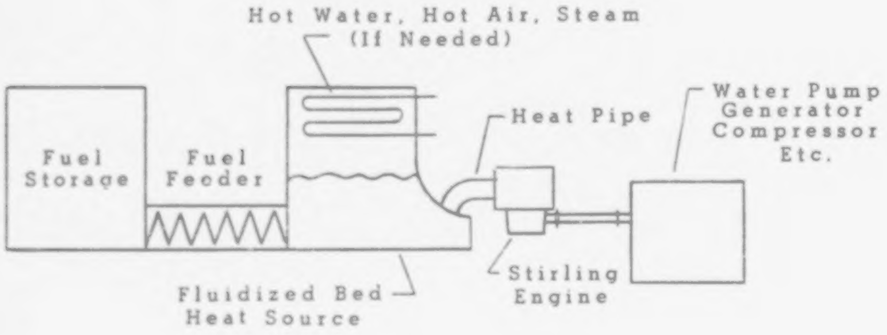
It is estimated that this system could displace up to the equivalent of 145,000 barrels of oil per day when totally implemented. This premium fuel displacement can directly affect our balance of payments deficit while providing jobs in the manufacturing and fuel supply areas that do not now exist.

With nine million dollars of our own funds and a small, recent, USDA grant, we have brought this system from a paper concept to the point, today, where we have an operating prototype which shows a great deal of promise. However, three years of substantial research and development is needed before the system can be made available for field and market testing. Unfortunately, the level of R & D required is beyond the means of Valmont, and without government assistance, we cannot find the means or the rationale to continue with this effort. We are unaware of any other viable solid fuel concept to address the above mentioned applications, and we feel that it would be a terrible loss if this option were to be discontinued.

Valmont Industries, Incorporated has assembled a well qualified team to utilize the investment of public funds in these technologies. Valmont Industries, of Valley, Nebraska is the team leader and will provide program management, fluidized bed and heat pipe research plus overall coordination. Mechanical Technology Incorporated of Latham, New York is to supply Stirling engine technology. Mechanical Technology Incorporated is the prime contractor for the DOE automotive Stirling engine program and is well qualified to bring those developments to this program. The third major team member is Deere & Company of Moline, Illinois, a well qualified heavy duty engine manufacturer. Deere will bring the necessary engine manufacturing expertise to the program. Both Valmont and Deere have well developed product marketing channels through which the resulting product can be marketed both domestically and internationally.

## Solid-Fueled Stirling Engine System

## SYSTEM SCHEMATIC



In conclusion, Mr. Chairman, we are now seeking Government assistance to advance the research necessary to address the basic technical problems that must be resolved before commercial development can be considered. This research effort will cost approximately 15 million dollars and take three years to complete. Private funding would then be used to commercialize these technologies.

The funding required to successfully complete this basic research phase is beyond the scope of Valmont's financial capabilities. Without Government support, Valmont will be forced to terminate its program and the significant benefits of this concept will be lost to the entire country.

It is our hope that the Committee will make the benefits of this concept a reality by providing four million dollars in fiscal 1989.

I appreciate this opportunity to present what we feel is an exciting opportunity to arrive at a lower cost power source for both agriculture and small business, while enhancing our country's energy security.

## CITY OF CEDAR RAPIDS, IA

### STATEMENT OF HON. DONALD J. CANNEY, MAYOR

### ACCOMPANIED BY DR. REX MONTGOMERY, UNIVERSITY OF IOWA

Senator **HARKIN**. I am going to ask the indulgence of Sharon Bomer, the director of government relations for the United Fresh Fruit & Vegetable Association. My colleague has to leave shortly, and we do have a panel here from Iowa. I am running about 10 minutes—no, I am only running 7 minutes behind right now.

But we will move on to them, and then we will come back to Ms. Bomer.

I would like to call to the witness table the Honorable Don Canney, mayor of the city of Cedar Rapids, and Dr. Rex Montgomery of the University of Iowa, if they would come up.

And if you have anyone else, Don, that you would like to bring up with you. Do you have anyone else, or is it just the two of you?

Dr. **MONTGOMERY**. Just the two of us, Mr. Chairman.

Senator **HARKIN**. All right.

I want to welcome the mayor of Cedar Rapids, who is accompanied by Rex Montgomery, the professor of biochemistry at the University of Iowa. Mayor Canney has served as the mayor of Cedar Rapids since 1969.

Can I talk to you sometime about that? I mean how you do that in Iowa? [Laughter.]

He has been one of the most farsighted officials in my State and in the Nation. He has been a key person in promoting and developing international trade in the Cedar Rapids area, and in bringing industry to a city in the State of Iowa.

We have had some very tough economic times in Iowa in the eighties, but throughout that period I have to say that Cedar Rapids has done far better than other cities in my State, and I believe a large portion of that thanks has to go to the mayor, who has obviously demonstrated time and time again to the citizens of Cedar Rapids that he is, indeed, a good leader of that city.

Today Mayor Canney is presenting a research proposal to the committee on behalf of the University of Iowa, Iowa State, and the city of Cedar Rapids. The proposal is not for Cedar Rapids, but it can provide answers to one of the major problems that we face as we try to develop new high value products and crops where fermentation is the process being used.

The question is: How do we handle the wastes at a reasonable price? Can we turn part of that waste into saleable products, which increases profits, and also reduces the cost of processing the waste?

Finding answers to these questions can have a truly major effect on the profitability of agriculture in many parts of our country in the coming years.

Mayor Canney and Dr. Montgomery, welcome to the committee. Please proceed as you so desire, Mr. Mayor.

Mayor **CANNEY**. Thank you very much, Mr. Chairman, members of the committee, Senator Grassley.

It is indeed a pleasure, and we appreciate the opportunity of being able to appear before you this morning.

The purpose of our appearance, as was mentioned earlier, is that the University of Iowa and Iowa State University and the city of

Cedar Rapids have formed a consortium to investigate and indeed to demonstrate a very serious problem, as we see it, and that is: How do we handle the waste streams from biotech batch fermentation plants?

We know that biotechnology has been around for centuries. It is the processes in which wine and beer and cheeses, and later penicillin, have been developed.

Essentially, what biotechnology is is that we are introducing a microorganism to a vat that would cause fermentation, the nutrients being products derived from high carbohydrate agrigrains such as corn, cornstarches, corn syrups, and certainly soy starches, to allow, then, this fermentation to take place, the microorganism then to secrete or to expel the product that we are looking for.

With that in mind, we can end up, then, with a very valuable product.

What is new is man's ability, of course, to genetically engineer microorganisms to cause them to do and to manufacture other products, and these products range all the way from artificial snowmaking materials certainly to antivirals, anticancers, enzymes, hormones, and so forth, that will affect all of mankind.

When we produce, for example, one teaspoon full of enzyme and cause literally carloads, railroad carloads, of waste that we have to treat, it appears to me that the thing that will stymie biotechnological development in batch fermentation is simply this Nation's inability to be able to handle the waste stream from these plants.

This will be the end point, so to speak, in biotechnology in this country, if we don't figure out how we can handle those waste streams, and indeed to recoup some of the valuable wastes that are being emitted to our treatment plants and in many cases to the streams themselves.

We propose that Cedar Rapids, the University of Iowa, and Iowa State University jointly combine for approximately a $10 million project to be spread over 4 years of which we would ask from the Federal Government to share in this project approximately in the amount of $7 million.

I think I would like to stop here, Senator, if I may, Mr. Chairman, certainly to allow any questions.

Senator HARKIN. Dr. Montgomery, did you have anything to add?

Dr. MONTGOMERY. No; I think I would prefer to respond to questions, if you have any.

Senator HARKIN. Fine.

Then I would recognize my colleague, my friend from Iowa, Senator Grassley.

Senator GRASSLEY. First of all, thank you very much for your testimony, for making the trip to Washington here to further educate the committee as a whole.

We all know that Senator Harkin has taken a leadership role in this, and we thank him for that. I want to say that I am going to help aid those efforts as best I can and work with Senator Harkin on that, particularly because we would feel that not only environmentally but economically, the factors are too important to ignore an opportunity like this.

Besides thanking you, I have specific questions. We always look at the economics of these things, and maybe it takes further research to answer this, but to the extent to which you could inform the committee, assuming success in this effort, what might be the economic impact for Iowa?

Or, second, both from the standpoint of the Nation and the business economic impact as well, what is the economic benefit as far as environmental safety?

Mayor **Canney**. Senator, I think it is somewhat difficult to place the benefits, since the thing that is happening in biotechnology is that there has been almost an explosion that has occurred in the last few years.

Up to 1984 we have had over 200 companies in the United States that have been attempting to commercialize biotechnology. Cedar Rapids, in particular, is an ideal location for this type of research and demonstration to appear, simply because we do have three wet milling operations, three different companies that do wet mill grain; corn, soybeans, et cetera, and produce the byproducts, the nutrients that are needed for the microorganisms—that is, the starches, both corn and soystarch and certainly the dextrose—that are needed for the growth.

I think what will happen is essentially, if we do allow biotechnology to continue and that we do not stymie its development because of the lack of adequate sewage treatment, I think what will happen is that this will be an extremely important new industry, on the very cutting edge of knowledge, as it relates not only to Iowa but as it relates to this Nation as a whole.

And we will see continued use of agricultural crops, particularly the grain crops, and certainly with that we know that we have an abundance in storage, we know that we are going to be faced with this problem of how we handle those surpluses.

No better way, in my mind, exists than to create useful products for the benefit of mankind through biotechnology.

I don't really have a figure on that. I know that the cost being proposed in Cedar Rapids for the sewage treatment of seven vessels of 75,000 gallons apiece would average in excess of $1.4 million a year—just to treat the waste. And that, in turn, causes the cost of that product to increase.

Senator **Grassley**. If the research were successful as it applied just to this one industry coming to Cedar Rapids, there would at least be that saving.

Mayor **Canney**. That is correct.

Senator **Grassley**. So, for the request of something like $7 or $8 million, that would pay back very quickly in 4 years, if that were successful.

Mayor **Canney**. Senator, I am certain, with some of the high volumes of proteins that are in these wastes, it really doesn't make much sense to run those proteins through sewage treatment plants. We have to recapture the valuable byproducts that are in that waste.

Senator **Grassley**. Yes.

Well, Mr. Chairman, I have no further questions; but to summarize, this specific request that you have made to the committee, comes at the very time when not only this committee, but the Senate Agriculture Committee, the Senate Budget Committee, and the U.S. Department of Agriculture are very much interested in furthering research in biotechnology. So I would expect the environment to be very favorable toward this. I suppose there are negatives from a budget standpoint of the immediate consideration, but I hope we are able to overcome those.

So, thank you, and thank you Dr. Montgomery, for your testimony.

Mayor CANNEY. Thank you.

Senator GRASSLEY. Thank you.

Senator HARKIN. Thank you, Senator Grassley.

Mayor Canney, I think you pointed out in your testimony that some of the waste streams contain as much as 50 percent protein.

Mayor CANNEY. That is correct, Senator.

Senator HARKIN. So there is an economic benefit if you can recapture that.

Mayor CANNEY. Very much so.

Senator HARKIN. I just have two quick questions.

Your proposal calls for a symposium. Why is that necessary?

Mayor CANNEY. I think I would like Dr. Montgomery to answer that, Mr. Chairman.

Dr. MONTGOMERY. We believe that the symposium will serve us well in networking the industries that are related to biotechnology, the research of those persons in the university, and Government agencies, so that we can demonstrate clearly and have a good communication established early on in the demonstration project by holding a meeting of this kind.

Senator HARKIN. Does this proposal include funds for a facility? If so, how much of your budget request is for this purpose?

Dr. MONTGOMERY. The proposal has no facility inclusion in terms of a building of that kind, no.

Senator HARKIN. No. All right, that is all I needed to get on the record.

Mayor CANNEY. Mr. Chairman, I would ask that our remarks become part of the record.

Senator HARKIN. They will, in their entirety.

Mayor CANNEY. And as well, we do have an executive summary that we would like to submit as a part of the record.

Senator HARKIN. It will be made a part of the record, then.

Mayor CANNEY. Thank you very much.

Senator HARKIN. Thank you, Mayor Canney. Thank you, Dr. Montgomery.

[The statement and executive summary follow:]

## STATEMENT OF MAYOR DONALD J. CANNEY

Honorable Senators, Members of the Appropriations Subcommittee on Agriculture, Rural Development, and related agencies.

My name is Donald J. Canney (C-a-n-n-e-y) Mayor of the City of Cedar Rapids, Iowa. I appear before this body today to urge your financial support for a research and development grant to study waste streams from biotechnology and food processing industries. The main purpose of this research is to recover valuable by-products from these waste streams, thus alleviating the need to spend vast sums for wastewater treatment facilities and to enhance the development of new and alternative uses for high starch, agricultural crops through biotechnology.

Biotechnology utilizing batch fermination is not new. Wine, beer, and cheese are products of this procedure. Natural microorganisms that have existed throughout history have enabled man to produce these products. What is relatively new is man's ability to create new organisms that have not heretofor existed by splicing genes and changing the order of the chromesome chain to form new manmade microorganisms to work for the benefit of mankind. These new microorganisms are then introduced into large fermentation vessels that are loaded with nutrient derived from agricultural crops (corn, soybeans, etc.). The microorganisms feed on this nutrient broth and grow and multiply. In some cases the valuable product is the organisms themselves and in other cases it is what they expel. The organism remaining in the waste streams are then killed by live steam prior to discharging from the system. Products from biotechnology range from enhancement of artificial snow making to antivirals, antitumor, antibiotics, anticancers, immune modulators, vitamins, amino acids, medical and industrial enzymes, ethanol and many other uses not yet developed. Perhaps we will see the cures for various cancers, growth deficiencies, coronary artery diseases and A.I.D.S. from biotechnology. Who knows . . . maybe even a cure for the common cold will result.

This research and development proposal is not, however, geared to the primary products of biotech batch fermentation, but to the secondary or waste stream.

A consortium consisting of the University of Iowa, Iowa State University and the City of Cedar Rapids, Iowa, has been formed to research and develop uses for valuable by-products from these waste streams. The magnitude of waste from biotechnologic fermentation is enormous.

The production of a teaspoon of an enzyme or synthetic hormone produces railroad cars in volume of waste. Expanded production and further development of lifesaving drugs, such as those to mitigate the damage of heart attack, will be stymied by the cost of conventional wastewater treatment methods and capacity of local wastewater treatment plants. Some of the waste streams contain as much as 50% protein. This is a much too valuable by-product to waste by running through a sewage treatment plant, not to mention the high cost of treatment, or the inherent problems associated with treatment.

No one location has demonstrated that it can effectively deal with the waste streams produced as a result of these new fermentation processes. The biotechnology industry is searching for a home. That home will need to demonstrate that it has the technical and physical capacity to deal with that waste stream. It appears logical that the best solution to the problem is to remove the valuable by-products such as proteins and carbohydrates before they get into our sewers. If we can remove these by-products before treatment of the waste streams we not only reduce the loadings on our wastewater treatment plants, but recapture valuable commodities. In essence, we turn a serious liability into a great asset. If we can eliminate the problems of the waste streams from batch fermentation then the biotech industry in this country can flourish, and agriculture will be a major benefactor.

A single large scale production plant will use thousands of tons of processed corn, soy-based and/or other grain products. Volumes of this magnitude create a substantial new market for these materials demanding greater capacities from grain processors. Quite naturally, this new market will affect grain supplies -- both grown and in storage, farm subsidy programs and grain prices, production techniques and materials and agriculturally-related industries.

In addition to the "primary" use of raw materials in the fermentation process, it is likely that other uses for grain products will be found. Fermentation is a very broad biological process that will be investigated to determine if, given specific modifications to the process and ingredients, processed grain products could be used to replace more conventional feed stocks.

A biotechnological fermentation facility of seven 120,000 liter fermentation vats could conceivably produce a waste stream of 250,000 gallons/day of flow containing 27,000 lbs. of bio-oxygen demand/day, 40,800 lbs/day suspended solids and 6,000 lbs/day TKN. The City of Cedar Rapids has an ultra-modern state-of-the-art wastewater treatment facility (that cost $71.6 million) capable of treating a wastestream of this volume and content. Most cities in the United States do not.

The cost of treating such a wastestream is estimated to be approximately $117,600 per month. This translates into an annual operating expense of more than $1.4 million. An operating expense such as this is reflected in the final cost of the products, determines their competitiveness against any possible foreign imports and their cost-effectiveness to produce and market.

A common practice of the past, in dealing with excess materials or wastes, has been to simply throw them away at the nearest dump site or wastewater treatment facility. Depending on the industrial process being used, the physical form of the by-products can vary with respect to the concentrations of particulate and soluble components. The concentration of degradable organic, the nutrient content and the presence of toxic compounds can also vary considerably. At the present time, some knowledge is available regarding the impact these exotic wastes may have on the environment, but extensive knowledge to defuse public fear and panic is not, even though the microorganisms are killed before entering the wastestream. Prior to attempting to treat large volumes of the wastestream at a wastewater treatment facility, we need to know if the wastes could damage wastewater treatment facility processes possibly allowing full strength dumping into receiving streams creating a major catastrophe. Industrial and biotechnological wastes and by-products may supply or supplement valuable plant nutrients or improve soil conditions that have been degraded by erosion, compaction, acidification or nutrient depletion. On the other hand, these materials may contain constituents that might be harmful to plants, animals and humans. Prior to deploying any by-products of biotechnologic fermentation to our soils, streams or livestock we need to know if they contain detrimental substances.

This then is a request for the Federal government to join with the City of Cedar Rapids, Iowa, the University of Iowa and Iowa State University to research and develop the recovery of valuable by-products of biotechnological fermentation. This project will be spread over a four year period with each of the members of the consortium participating in their particular areas of expertise. The amount of Federal participation is $7,900,385. The three members of the consortium will expend $2,599,735 of inkind match for a total budget of $10,500,120. See attached budget summary for breakdown.

Your participation in this project is respectfully requested.

## TOTAL BUDGET SUMMARY

| | 1st yr. | | 2nd yr. | | 3rd yr. | | 4th yr. | | Totals | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Local | Federal | Local | Federal | Local | Federal | Local | Federal | Local | Federal |
| CR | 70,500 | 193,740 | 61,050 | 216,610 | 62,330 | 225,060 | 16,750 | 65,460 | 210,630 | 700,870 |
| U/I | 878,239 | 1,597,218 | 180,026 | 1,055,769 | 194,665 | 1,122,121 | 210,776 | 1,193,653 | 1,463,706 | 4,968,761 |
| ISU | 184,103 | 663,043 | 227,867 | 675,286 | 246,658 | 427,066 | 266,771 | 465,359 | 925,399 | 2,230,754 |
| Totals | 1,132,842 | 2,454,001 | 468,943 | 1,947,665 | 503,653 | 1,774,238 | 494,303 | 1,724,472 | 2,599,735 | 7,900,385 |

## FEDERAL REQUESTED BUDGET

| | 1st yr | 2nd yr. | 3rd yr. | 4th yr. | Totals |
|---|---|---|---|---|---|
| CR | 193,740 | 216,610 | 225,060 | 65,460 | 700,870 |
| U/I | 1,597,218 | 1,055,769 | 1,122,121 | 1,193,653 | 4,968,761 |
| ISU | 663,043 | 675,286 | 427,057 | 465,359 | 2,230,754 |
| Total | 2,454,001 | 1,947,665 | 1,774,238 | 1,724,472 | 7,900,385 |

## A RESEARCH AND DEVELOPMENT PROJECT FOR THE RECOVERY OF FERMENTATION BYPRODUCTS

### EXECUTIVE SUMMARY

The City of Cedar Rapids, together with the University of Iowa and Iowa State University, proposes a joint demonstration project, to develop and test methods to turn fermentation byproducts into useful new products and processes. The project is intended to reduce the burden of wasteproducts upon municipal waste management systems, while at the same time increasing opportunities to develop commercially viable products. In so doing the project will provide a model for other municipalities to form productive government-industry-unversity consortia to explore methods to turn waste into assets.

### SCOPE OF THE NATIONAL PROBLEM

With the dramatic increase in biotechnological activity will come a concomitant responsibility to increase the capacity and sophistication of the nation's waste management systems. Byproducts of biotechnological processes will pose new problems and opportunities for industries and geographic areas associated with them. At present, there is a serious gap between technological breakthroughs made possible by the rapid pace of scientific discovery and our nation's capacity to deal with the byproducts of these processes. This proposal would provide a model to bridge the gap in several specific areas, including fermentation, enzyme catalysis and bioprocessing.

Biotechnology is a rapid growth industry. By January of 1984, over 200 US companies were attempting to commercialize biotechnology. Currently, the private sector investments to commercialize biotechnology exceeds one billion dollars, and the capitalization exceeds five billion dollars. Furthermore, it is estimated that by the year 2000, two-thirds of all industries will be influenced by biotechnology, with the world market for biotechnology related products ranging from 50 - 100 billion dollars per year. Many of these are related to agricultural chemicals, pharmaceuticals, human health care, and animal nutrition products. With this heavy investment by biotechnology related industries into the future industrial base of the United States, there will be large amounts of waste materials which can be used to spur the growth of new industries and products.

### DEMONSTRATION PROJECT TO MEET NATIONAL NEEDS

Methods and approaches developed in this project will reduce, and in some cases eliminate altogether the needs for overburdening the nation's wastewater treatment plants with wastes from new fermentation industries. Nearly 50 billion dollars has been spent constructing municipal wastewater treatment plants during the past 15 years. Surveys conducted by the Government Accounting Office, the Environmental Protection Agency, and the Water Pollution Control Federation indicate that many municipal wastewater treatment plants are not meeting their effluent discharge limits because they are overloaded. By focusing on recovery and recycling of materials of value from fermentation wastes, as well as other industrial wastes, the burden on municipal wastewater treatment plants will be reduced. This will ultimately result in an overall reduction in costs for wastewater treatment for industries, municipalities and the nation itself.

Recognizing that each fermentation process will result in a different mixture of by-products, a proposal to study their utilization takes on many of the elements of research for which protocols can be proposed. The specific aims, in very general terms, are summarized here. The approaches to satisfy each of these aims are then outlined further in the text of this proposal.

The specific aims of this proposal are:

1. To conduct a symposium which would establish a national communication network of university researchers, industry representatives, and

governmental officials to exchange and apply fermentation byproduct expertise in new ways.

2. To analyze the by-product streams, solid, liquid or gas phases.
3. To isolate the components of these streams in order to evaluate their economic development implications.
4. To develop, test and evaluate separation processes for the recovering of high-value products.
5. To produce value-added products from the fermentation by-products by secondary fermentation.
6. To examine the results of anaerobic treatment for improved processes and higher value products.
7. To develop microbial and enzymatic transformations of fermentation waste products for the production of fine chemicals.

## INTENDED RESULTS AND BENEFITS

The projects described in this proposal will without question develop methods and techniques that will reduce the cost of treating the nation's wastewaters. It is a demonstration project which addresses generic problems existing in any community actively developing a biotechnology industrial base. Historically, industrial wastes have been discharged untreated or partially treated into the nation's waters or to municipal wastewater treatment plants. This demonstration project represents an opportunity to change this course, to develop new methods for recovering and recycling materials of value from new fermentation wastes. We also present methods which will reduce the volumes of waste for disposal and minimize or eliminate the environmental insult associated with those solids and liquids that must finally be released to the environment. The specific aims include logical components which will be required in the solution of by-product waste problems of nearly any sort. The analysis component will identify target substances for use in preparing value-added products by refermentation, microbial and enzymatic biocatalysis, or anaerobic treatments. Finally, separation processes will be established for the isolation and recovery of value added products.

## UNIQUE CAPABILITIES OF PARTICIPANTS

Problems created by state-of-the-art technologies require state-of-the-art capabilities...all uniquely found in the City of Cedar Rapids, the University of Iowa and Iowa State University. The proposal represents an unusual collaboration between scientists at two major midwestern research universities, and a city which has a solid base of industry dedicated to the use of renewable resources. Cedar Rapids has a long standing involvement in industries associated with corn and oat processing and milling, the use of biocatalysis in the production of high-fructose syrups, and one of the largest fermentation facilities in the world. The number of businesses with international connections and export capabilities ranks it at or near the top of the list of cities exporting on a per capita basis. Many exporters are national and multi-national agricultural based, food-related or processing companies. These companies would have a vested interest in the results of this project. Cedar Rapids has the diversified economic base to represent industry that could benefit from project results.

The City's uniqueness extends to its wastewater treatment facility. This $71.6 million facility offers treatment of 42 million gallons of wastewater per day, computer monitored plant operation, three phases of biological treatment providing state-of-the-art processing of industrial and domestic waste loads. The future needs of a larger metropolitan area are incorporated into the plant - equivalent to domestic waste contribution. The plant has a total treatment capacity of 1.4 million people, but the biotechnology waste problem is much larger. Other cities will benefit from the results of this project through creation of technology to handle a state-of-the-art problem at less cost with smaller facilities and no environmental problems. This is due to Cedar Rapids' unique ability to put the research into practical application.

Participating scientists from both Iowa State University and the University of Iowa derive from talented and highly competitive faculties with active research programs in relevant project areas. The University of Iowa has an unusual dedication to the development of complete and state-of-the-art Central Research Support facilities which will permit groups of investigators, such as ours, to pursue analytical, fermentation and other types of research relevant to the proposal. The Biocatalysis Research Group at the University of Iowa finds no counterpart in the world, and it consists of a consortium of scientists from six major departments who are dedicated to basic research and development in the field of biocatalysis. Iowa State University is well-known for its research in the areas of animal diseases and nutrition. This combination of scientific and community backgrounds brings together people who are interested in and sensitive to problems in biotechnology, and who are dedicated to arriving at solutions to them.

## BACKGROUND

This research and development project will have very significant and far-reaching economic and environmental impacts beneficial to all; to all levels of government - federal, state and local; and, most significantly, the biotechnology industry; agriculture and the environment itself.

Fermentation is not new by any means. But as new technologies are discovered, developed and applied to the processes of fermentation, the resulting number of useful products are endless. Therefore, this industry is on the very cutting edge of new biotechnology. The raw materials used in these processes are grown in abundant volumes in the Midwest and Great Plains states of the United States.

The production of a teaspoon of an enzyme or synthetic hormone produces railroad car volumes of waste. Expanded production and further development of lifesaving drugs, such as those to mitigate the damage of heart attack, will be stymied by the cost of conventional wastewater treatment methods and the lack of waste treatment capacity in local wastewater treatment plants. No one location has demonstrated that it can effectively deal with the wastestreams produced as a result of these new fermentation processes. The biotechnology industry will need to demonstrate that it has the technical and physical capacity to deal with wastestreams. This project would provide one model to address this need.

It is obvious that the continued physical, economic and environmental health of this country depend upon the creative solutions to the waste generated by the emerging biotechnology industry. Solutions that turn wastes into assets provide superior alternatives.

## SYMPOSIUM TO ESTABLISH NEW COMMUNICATION NETWORKS

One of the first activities of the proposed demonstration project will be to host a symposium. The symposium will be a broadly based organizational meeting intended to provide a productive exchange of information among industrial, municipal and other governmental professionals from throughout the nation. Individuals involved in fermentation and biotechnology industries will be invited to attend and participate together with scientists from academia and federal agencies such as the Environmental Protection Agency. Approaches to be used in this project will be as described, and we hope to identify new problems which will require solutions. The symposium will afford an opportunity to establish a nationwide network of communication that we hope will allow for a continuous exchange of expertise, and the rapid identification of new problems as they arise.

## RAW MATERIALS

A single large scale production plant will use thousands of tons of processed corn, soybean and/or other grain products. Volumes of this magnitude create a substantial new market for these materials demanding greater capacities from grain processors. Quite naturally, this new market will affect grain supplies, both grown and in storage, farm subsidy programs and grain prices, production techniques and materials and agriculturally-related industries.

In addition to the "primary" use of raw materials in the fermentation process, it is likely that other uses for grain products will be found. Fermentation is a very broad biological process that will be investigated to determine if, given specific modifications to the process and ingredients, processed grain products could be used to replace more conventional feed stocks, i.e. petroleum, in the production of more valuable multi-carbon gases. A more detailed explanation occurs later in the section Fuels and Fuel Substitutes.

## THE WASTESTREAM AS A PROBLEM

A facility of seven 120,000 liter fermentation vats could conceivable produce 250,000 gallons/day of flow containing 27,000 lbs. of bio-oxygen demand/day, 40,800 lbs/day suspended solids and 6,000 lbs/day total Kjeldahl nitrogen (TKN). The City of Cedar Rapids has an ultra-modern state-of-the-art wastewater treatment facility (that cost $71.6 million) capable of treating a wastestream of this volume and content. Most cities in the United States do not. But even Cedar Rapids' capacity is not unlimited.

The cost of treating such a wastestream was estimated to be approximately $117,600 per month, based on the wastewater treatment ordinance the City of Cedar Rapids had in effect near the end of 1987. This translates into an annual operating expense of more that $1.4 million. An operating expense such as this is reflected in the final cost of the products, determines their competitiveness against any possible foreign imports and their cost-effectiveness to produce and market.

A common practice of the past in dealing with excess materials or wastes, has been to simply throw them away at the nearest dump site or wastewater treatment facility. Depending on the industrial process being used, the physical form of the byproducts can vary with respect to the concentrations of particulate and soluble components. The concentration of degradable organic, the nutrient content and the presence of toxic compounds can also vary considerably. At the present time, some knowledge is available regarding the impact these exotic wastes may have on the environment, but extensive knowledge to defuse public fear and panic is not. Prior to attempting to treat large volumes of the wastestream at a wastewater treatment facility, we need to know if the wastes could damage wastewater treatment facility processes, possibly allowing full strength dumping into receiving streams creating a major catastrophe. Industrial and biotechnological wastes and by-products may supply or supplement valuable plant nutrients or improve soil conditions that have been degraded by erosion, compaction, acidification or nutrient depletion. On the other hand, these materials may contain constituents that might be harmful to plants, animals and humans. We need to know this prior to using land application techniques.

## ALTERNATIVE USES OF BY-PRODUCTS

### Fertilizers

With small amounts of processing, fertilizers, fertilizer additives/substitutes and soil conditioners are available directly from the fermentation wastestreams. The consortium believes that various admixes will result in salable products utilizing cement kiln dust, fly ash from coal-fired power plants and lime fines. These fertilizers can be used in the form of sludge admixes and compost material. These by-products may supply or supplement valuable plant nutrients or improve soil conditions and enhance productivity without damaging water quality and harming other elements of the environment.

**Fuels and Fuel Substitutes**

Through conventional treatment methods, methane gas can be recovered quite easily. Biologically produced methane (from sewage digestors) normally contains virtually no ethane, propane or butane. For many purposes, ethane, propane and butane are preferred over methane. Their advantages include higher volumetric energy content, ease of storage, compressibility and they are synthetic feedstocks for other products. Many processes are envisioned that would produce these gases at high rates with a high efficiency from biomass, e.g. crude starch, corn stalks and other waste materials. Because of their advantages, these gases are ideal energy sources with unlimited supply. In addition, conversion of ethane into ethylene to be used in the polyethylene market would provide a very large use of carbohydrates (such as starch and organic wastes). In 1987, the U.S. produced 15.4 million tons of ethylene from petroleum sources. If carbohydrates were to replace petroleum as a feedstock, the 1987 ethylene production would need 99 million tons of carbohydrate. One medium-sized ethylene plant would consume about 2 million tons of organic material per year. Substantial amounts of methane could also be produced. Thus, given that U.S. corn production levels could yield more than 250 million tons of carbohydrate per year, its conversion to alkanes would provide a major outlet for bioprocessing industries.

**Human/Animal Health Care**

The consortium believes that, with examination and identification, several compounds can be isolated and recovered that display antitumor, antiviral, antibacterial, antifungal, antiprotozoa and antialgal properties. Other extracts could contain such things as vitamins, steroids (used in drugs for stimulating the heart and hormones), antibiotics, micronutrients, basic biochemical building blocks, amyl nitrate (used medically as a vasodilator), and lactic acid (used in pharmaceutical). Toxic and debilitative constituents may also be identified. In the medical industry, these discoveries may lead to revolutionary new ways to treat diseases and illnesses through an understanding of the disease or illness and new compounds for new wonder drugs. In the livestock industry, new feed supplements could results in faster gain, less cost and less toxicity to the animal and humans.

**Other Uses and Production of Value-Added Products**

Through bioconversion and/or isolation, many products can be recovered or manufactured that are useful. Such compounds could be metal chelators used for the reclamation of precious metals and to clean up industrial wastes, which directly and indirectly affect the environment; fusel oils that are solvents for fats, oils, resins and waxes and are used in the production of explosives; lactic acid used as beverage flavorings, preservatives, adhesives, plasticizers and pharmaceuticals; citric acid used as flavoring in foods and metal polishes; aromatics, synthetic chemicals; and starters for other fermentation processes.

## TECHNOLOGY

The new knowledge gained through this research and development project will have a direct impact on industry, government and the environment. Refinement of fermentation processes will lead to more efficient production at less cost. Alteration of these processes will enhance the recovery and/or production of value-added and high value compounds. Anticipated is the development of novel methods to recover and bioconvert valuable products. Learning how to recycle the water used in the fermentation process will lead to reducing the amounts drawn from aquifers and other sources, aid in the recovery of by-products by increasing concentrations, refine recycling technology and reduce the need for large and expensive wastewater treatment facilities. Research results will improve efficiencies of existing treatment methods - new twists on "old" technology and the development of new technologies. Higher rates of conversion of organic materials require smaller

**size treatment facilities that are more efficient, and therefore less costly to build, improve and operate. Livestock confinement facilities will benefit from healthier animals, less run-off and cleaner water supplies. The consortium believes that this new technology can be transferred to other industries. Adaptation of municipal refuse within the refuse process itself, could yield smaller processing units and/or landfills, reduce liquid wastes and produce fuel. Similar technologies can be applied to the processing of food wastes, thereby reducing costs, leading to cheaper food and greater profits. This also has a direct relationship to wastewater treatment facilities.**

## RESPONSES BY MAYOR DON CANNEY TO ADDITIONAL QUESTIONS BY SENATOR HARKIN

1. **What do you believe will occur if the type of research that you propose is not carried out?**

Biotechnology is an industry using renewable agricultural materials to produce non-feed products, such as organic acids, commercial enzymes, hormones, growth factors and the like. The potential for such application is bounded in significant measure by the ability to release the waste by-products to the environment in a manner compatible with safety to all life forms in the streams and rivers, the atmosphere and on the land. The pipe-line of the biotechnology processes depends upon methods whereby these by-product streams can be kept flowing from the fermentation processes without accumulations. The waste by-product streams could plug the pipe-line and so reduce the potential growth of the industry until ways are found to get rid of the "plugs" either by increasing the sewage plant capacity of the nation or else using the by-products in an economically feasible fashion. The proposal describes approaches to the problem by approaching these by-products as potentially valuable starting-materials for bioconversion to value-added products or by using them as nutrients for animals (feed) or plants (fertilizer). The alternative is the expensive investment in sewage facilities

The biotechnology world is still in its infancy. As the ability to develop and synthesize DNA is perfected the application of recombinant DNA for manufacturing of specialized chemicals and medicines will expand logarithmically. The time for development from the research laboratory to production can be very short. Even then the production of the product may not be feasible if waste treatment or an alternative method of utilization is not available for the waste from the process.

One response would be to discharge these wastes to the sewer and use conventional wastewater treatment facilities, expanding them to handle the increased load. Wastewater treatment plants are designed to handle a dilute wastewater with less than 500 parts of impurity to 1,000,000 parts of water. Biotechnology wastes are 100,000 parts impurity to 1,000,000 parts of water. Much of the energy of the usual waste treatment is spent in concentrating the dilute parts to the concentration of the normal biotechnology waste, so that discharging biotechnology wastes to the sewer severely dilutes them and the wastewater treatment plant must then pay a greater energy cost to return the waste to its original state.

In addition to the organic component, the biotechnology wastes are rich in nutrients, far in excess of the normal levels found in wastewater. Nutrient removal is much more expensive than conventional wastewater treatment; in Cedar Rapids a pound of organic solid costs $0.05 to treat while the nutrient nitrogen costs $0.27 a pound to remove (more than the current costs for fertilizer nitrogen).

The discharge of these wastes to the sewer also damages the sewer network. High temperature, high strength wastes, such as biotechnology wastes, promote the formation of chemicals that destroy the sewer and headworks of wastewater treatment facilities. The premature loss of this infrastructure of a city is often an unnoticed liability until catastrophic failure. This cost is a deferred cost not present in the rate structure and therefore never assessed against the user that caused the problem. Few really appreciate the current magnitude of these national costs and now is not the time to add to them.

Another response would be to concentrate on resource recovery, lowering the energy (pollution) level of the waste by secondary fermentations and recycling the nutrients to the land. By recycling the byproducts and nutrients the waste treatment capability of the land is never overloaded because nutrients recycled are never in excess of what came from the land. Energy costs for recycling can then be offset by the costs of alternative nutrient production.

If this proposed research is not performed, the only proven option for treating the secondary product from the biotechnology industry will be to treat it as a waste. The capital costs for building adequate waste treatment facilities and the actual treatment costs would be astronomical and prohibitive for the developing industry. This would result in:

1) The biotechnology industry being inhibited from growing due to either a low or negative profit margin, or a high cost and unaffordable product. Competition from foreign biotechnology industries already present a problem that does not need further complications.

2) A potential national resource will be squandered.

This research will create a perspective on waste treatment and product development that will be a model for future emerging technologies by developing secondary products and the closing of the energy cycle, where the energy of the waste becomes insignificant in comparison with the starting elements.

2. **Why do you believe that the University of Iowa, Iowa State and the City of Cedar Rapids are the logical entities to engage in this research?**

The Consortium of the two state research universities and the City of Cedar Rapids have already initiated research and development work relevant to the isolation of new products and of by-products from fermentation industries. The raw chemical feedstocks for the primary fermentations are to be found in this state. Iowa City, Ames and Cedar Rapids are close to a variety of diverse industries processing corn, oats and soybeans. These are industries that already contribute organic material to waste treatment facilities and have natural interests in the research being conducted by the Consortium. Examples of these industries are the lysine, and soon-to-be-constructed citrate, production plants in Eddyville, Fermentation Products in Mason City, and corn wet milling plants in Keokuk, Clinton, and Eddyville. Cedar Rapids presently has three wet milling industries, oat milling facilities, Diamond Mills, and will soon be the home of an Eastman Kodak plant making bacterial products. The organic waste generated by existing industries is considerable, but will be expanding dramatically. These problems could reach crisis proportions and must be dealt with intelligently before conditions become severe.

The University of Iowa is unique because research on finding and developing new products from fermentation reactions is ongoing. For example, a microbial process has been developed for the conversion of corn oil to an exotic carbohydrate, rhamnose. The Iowa Corn Promotion Board has provided a small amount of seed money for research in the Microbiology Department, University of Iowa, on the conversion of corn starch to methane and ethane. They are also investing in research on new products, such as lactic acid and metal chelators, from the fermentation of corn steep liquor and gluten. The Corn Refiners Association is supporting research on the steeping process in wet milling and the ability to conduct that fermentation reaction to generate reproducible steep water and fermentation reactions. The Iowa Department of Transportation is funding research on the isolation of acetic acid from starch fermentation. The Iowa Department of Natural Resources is funding research on the production of ethanol from corn starch. The ethanol research at the

University of Iowa is novel in that it is investigating a one-step conversion of corn starch to ethanol using enzymes and the bacterium, Zymomonas mobilis. Conventional ethanol production involves fermentation by the yeast Saccharomyces cereviseae.

Preliminary research at the University of Iowa is also in progress in the field of wastewater engineering. These topics cover anaerobic production of metal chelators, which aid waste digesting microbes in metal nutrition and also detoxification of metal poisoning. Another topic, the anaerobic biodegradation of chlorinated solvents will be greatly aided by the imminent arrival of Dr. David Gibson from the University of Texas. Dr. Gibson is an international authority on microbial detoxification of these forms of toxic chemicals. An additional research topic covers the sulfide toxicity generated during sulfate reduction in anaerobic digesters.

The past research track records in these endeavors have been notable. Anaerobic waste treatment by these University of Iowa researchers have been supported by at least $800,000 in research support. The basic research being conducted at the university is also in close collaboration with the more applied research on anaerobic digestion at Iowa State University. The Morgan Waste Treatment Laboratory at the University of Iowa contains one of the largest constant temperature walk-in incubators for anaerobic biological waste treatment in the United States. It is located on property leased to the University by the Iowa City Sewage Disposal Plant. This close working relationship greatly facilitates the taking of sludge and anaerobic samples from digesters. The reverse in also true; material generated in the Morgan Laboratory can be sent back to the waste treatment plant for disposal. An equally cordial relationship exists between the Morgan Laboratory and the Cedar Rapids Waste Disposal Plant. These two plants also give the research an excellent diversity of samples because the Iowa City Facility centers around anaerobic digestion, whereas the Cedar Rapids plant utilizes aerobic digestion.

This engineering research will be broadened in the near future to include the Engineering Research Facility at the University of Iowa, which is under construction, will be a state-of-the-art laboratory and one of the best in the United States. Studies into the effects and fate of toxic pollutants in Iowa's water supply will be very important in both primary and secondary fermentation waste streams.

On the fermentation side of the research, the Microbiology Department at the University of Iowa houses one of the larger fermentation facilities in the midwest. The Director of this Facility is one of about ten U.S. researchers examining pure cultures of methanogenic bacteria. The methanogenic bacteria are important in the anaerobic degradation of waste and in the generation of the fuel, methane.

The University of Iowa houses many important research services. These include: the hybridoma facility, which is vital in immunological assays for organic compounds; the flow cytometry facility for analyzing labeled cells; services for determining molecular structures, including a protein structure facility, gas-liquid chromatography-mass spectroscopy analysis centers, nuclear magnetic resonance facility and an X-ray diffraction facility. Many of these core facilities are planned for the new Human Biology Research Facility. Other important centers involve the department of Preventive Medicine, which maintains statistics on the health of the citizens of Iowa. This Department works closely with the Agricultural Medicine Health Effects of Environmental Contamination. These facilities will be most important in assessing the impact of toxic wastes in the Iowa environment. In all of these endeavors, public opinion, both the assessment of and the informing of, becomes important. The Public Policy Center at the University of Iowa is involved in determining factors such as the opinions of farm families toward ground-water quality, as well as informing specific populations about issues such as the need for wastewater quality.

Finally, the Biocatalysis Research Group at the University of Iowa finds no counterpart in the world. It consists of a consortium of 22 scientists from six major research departments including Biochemistry, Botany, Chemical and Materials Engineering, Chemistry, Medicinal and Natural Products Chemistry, and Microbiology. This group of faculty scientists has been working together for over five years, and they have been drawn together through common research interests in all facets of biocatalysis. Research interests reflected in this unusual group include: fermentation microbiology, microbiological transformations of organic compounds, basic and applied aspects of enzymology, physical biochemistry, biochemical engineering with a focus on bioreactor design and function as well as downstream processing, plant cell culture, natural products chemistry and biochemistry, and synthetic chemistry. The Biocatalysis Research Group has hosted an interdisciplinary seminar for five years bring more than 40 individuals involved in biocatalysis research from throughout the world. Interdisciplinary research projects have been well supported by federal, state, and industrial sources. This research group also has been responsible for securing state-of-the-art fermentation facilities. The future of the Biocatalysis Research Group has been insured by funding from the State of Iowa to support an endowed professorship in Biocatalysis. An eminent scholar has been recruited for this position, and will be joining the faculty of the Microbiology Department in August. Professor David T. Gibson will assume a leadership role in the Biocatalysis Research Group upon arriving on campus. The organizer, and present coordinator of the Biocatalysis Research Group is an active participant in this project.

University of Iowa participants in this project have published extensively and have long-standing research programs in all of the areas of research relevant to this proposal. Clear and established expertise exists in the area of natural products biochemistry and chemistry. Our investigators have been directly involved with all of the classes of compounds expected to be used in this research such as carbohydrates, sterols, other terpenes, fats and oils, alkaloids, aromatics, and amino acids. University of Iowa scientists are leaders in fields of biocatalysis of natural products, biocatalytic production of useful chemicals, and in the chemical and spectral analyses of natural products.

3. **Now, we have been engaged in fermentation for centuries and we handle huge quantitites of waste from that fermentation. What makes the fermentation used to make these new products such as enzymes and catalysts so different?**

Since the advent of the new genetic engineering in the last two decades it has been possible in many instances to decide what product needs to be prepared and to engineer the metabolism of the bacterium or yeast or other single cell to change so that the desired material is obtained by fermentation. Previously a search for a product involved screening all the naturally occurring organisms until a suitable one was hopefully found; this was not always successful. Alternatively, random mutations were brought about in the organisms and again an appropriate one for the product desired was sought. With the new biotechnology the range of fermentations is great and the conditions of the waste by-products is much more variable. The problem of waste disposal is therefore many times greater than before and indeed may become a controlling factor in corporate decisions to develop any fermentation process at all and particularly in a certain geographical location.

The fermentation industry has also changed in its perspective toward waste. The philosophy used to be "make it cheap and throw the co- and by-products away". However, the econological concerns have become enormous. We are being forced to change the ways and degrees to which we insult the environment with waste products. We also must examine the waste streams for materials that may not have been made by design, but may still have high intrinsic value. The studies in this proposal will seek to find these high value compounds and also design secondary fermentation reactions that will result in additional compounds of high value. Alternatively, if no additional high value compounds can be found, secondary fermentations may be developed which have value in reducing the level of toxicity or biological oxygen demand present in the industrial waste.

The fermentations that are being planned in this proposal represent the newest advents in biotechnology. Modern biotechnology has totally changed the fermentation industry. Since we understand many of the microbial conversion reactions at a molecular level we have the ability to develop improved processes and products. By removing an enzyme from a microbe, we can make selected reactions without having a mixture of products. In addition, microbes can be modified in order to develop new strains with heightened abilities to conduct conversion. In some cases we may even be able to construct new metabolic pathways that will result in new products or new abilities to degrade problem wastes. Therefore, we are searching for multiple solutions to our problem of industrial waste that will simplify the organic waste problem and result in new, high value products. We propose to approach our environmental problems with a new perspective, that of understanding biology at the molecular level, we will investigate all of the possible alternatives for fermentation co- and by-products before we throw them away.

4. **Your proposal shows certain levels of matching support from the consortia. In looking at your proposal, have you counted all of the physical support that will come from the municipal waste facility? Are there other types of support that may not be fully counted in your proposal?**

Additional support from the University of Iowa

The University of Iowa is planning the development of resources that significantly contribute to the success of the demonstration project. In addition there is projected contribution of supplies and services by fermentation industries that will forward the aims of the proposal. These various types of support are summarized as follows:

1. Consultation with University of Iowa Faculty

In a research university the network of assistance from other faculty members is essential to modern investigations as is seen particularly in the faculty of the Biocatalysis Research Group.

a. David Gibson, Endowed Professor in Biocatalysis (10% consultant time)

| | | |
|---|---|---|
| State Funds | 50,000 | |
| University Match | 50,000 | |
| renovation costs | 62,000 | |
| equipment | 50,000 | |
| | | $ 212,000 |

b. 20 Faculty members in Biocatalysis Research Group (10% consultation time)

| | | |
|---|---|---|
| State Funds | 150,000 | |
| renovation costs | 10,000 | |
| | | $ 160,000 |

2. Facilities costs to build or renovate Core Research Centers

a. Core facilities in the building of the new Human Biology Research Facility (10% usage for program)

$1,000,000

b. Research facilities in the building of the new Engineering Research Facility

$ 100,000

c. Morgan Waste Treatment Laboratory, land leased from the Iowa City Sewage Treatment Plant by the University of Iowa

$ 150,000

| | |
|---|---|
| 3. Projected supplies and testing by fermentation industries in collaboration with demonstration. | $1,000,000 |
| 4. Projected Iowa Department of Economic Development support for technology transfer of demonstration projects | $ 500,000 |
| 5. Support from Iowa Corn Board and Department of Transportation for development of fermentation projects. | $ 110,000 |
| Additional Total Match | $3,232,000 |

Additional Support from the City of Cedar Rapids

| | | |
|---|---|---|
| 1a. Associated personnel to be involved in the project and travel, supplies and facility services | $ 120,000 | |
| b. Consultants | $ 110,000 | |
| c. Indirect costs | $ 1,000 | |
| | | $ 231,100 |
| 2. Equipment | | $ 210,000 |
| 3. Holding tanks and storage | | $ 500,000 |
| 4. Direct Injection of Fermentation Wastes into Soil | | $ 75,000 |
| 5. Enhanced Dewatering Capabilities by Low Pressure Oxidation/Vacuum Filter | | $ 70,000 |
| 6. Dewatering capabilities on a Belt-Filter Press | | $ 15,000 |
| Additional Total Match | | $1,101,100 |

5. **Can you describe some of the types of products that you see being manufactured through biotechnological modification that will use fermentation?**

Waste by-products of large scale fermentation industries remain as a nearly untapped resource for production of value-added products. There is ample precedence for the utilization of waste from on industry to create new biotechnological industries. For example, Cargill Inc., through its milling process produces large quantities of corn-steep water. This "waste-product" of the milling industry has been used, together with corn sugar, by a consortium of Takeda Laboratories (Japan), Orsan (France), and Cargill to establish a new fermentation industry in the State of Iowa known as Heartland-Lysine. This international industrial team now ferments Cargill wastes along with other medium components, using two 250,000 gallon fermentors to produce tons of the amino acid lysine by fermentation. As this is a newly introduced industry into the United States this past year, we believe that other waste products addressed in the proposal can be put to advantageous use in developing new biotechnology-based industry throughout the United States.

Products expected as a result of our research approaches would include:

| | |
|---|---|
| Organic acids | as synthetic intermediates, or nutrients derived from fusel oils, and other precursors; citric acid; lactic acid; fumaric acid; acetic acid; propionic acid; adipic acid. |
| Amino acids | as nutrients for humans or animals. |
| Unusual sugars | used as flavoring agents, or synthetic intermediates in the production of pharmaceuticals, sorbitol. |
| Fuels and solvents | methane, acetone, butanol, acetoin, isopropyl alcohol, ethylene glycol butanediol. |
| Biosurfacants | from corn and soybean oil |
| Waxes | to replace substances such as spermaceti |
| Unsaturated lipids and other oils | of value in hypercholesteremia |
| Polymers | polysaccharides, plastics based on metabolism and transformation of sugars, or vegetable oils |
| Pharmaceutical intermediates | from plant oil sterols by biodegradation, and biotransformation. Precursors for Vitamin D anticancer agents, prostaglandins, and related compounds |
| Lubricants | Through epoxidation, hydroxylation and other alterations of corn and soy lipids by microbial transformation. |
| Single cell Protein | nutrients |
| Glycerol | |
| Enzymes | amylase; protease; restriction enzymes and other enzymes used in molecular biology; enzymes for steroid bioconversion; modification enzymes for drugs; miscellaneous enzymes used for organic syntheses. |

## UNITED FRESH FRUIT & VEGETABLE ASSOCIATION

### STATEMENT OF SHARON E. BOMER, DIRECTOR, GOVERNMENT RELATIONS

Senator HARKIN. Next we will call Sharon Bomer, director of government relations, United Fresh Fruit & Vegetable Association.

Ms. BOMER. Good morning, Mr. Chairman, Senator Burdick.

I am Sharon Bomer, director of government relations for the United Fresh Fruit & Vegetable Association. United is the national trade association representing the fresh produce industry.

I will summarize my remarks, since you have a full schedule ahead of you.

Last year Congress and the administration made some very important strides in providing support to the American produce industry, particularly in the areas of food safety and export promotion. We greatly appreciate this committee's efforts in that regard.

Unfortunately, the administration has once again proposed a budget with some major gaps. United strongly urges the committee to support funding for the following programs at the highest possible level, to assure the continued safety of and public confidence in the American food supply.

Continuation of funding for the IR-4 Pesticide Clearance Program and enhancing of funding for the Pesticide Impact Assessments Program is greatly needed in the Cooperative State Research Service. Without these important programs, the fresh fruit and vegetable industry would be at a tremendous disadvantage by not having needed pesticides available for minor crop uses.

Once again, the administration has proposed a substantial cut in the budget for the Office of Transportation of USDA. We urge Congress to fund OT at its current level of $2.4 million.

The exports of fresh fruits and vegetables is on the rebound, thanks in part to the Cooperator and Targeted Export Assistance Programs. To continue this trend, we must provide the Foreign Agriculture Service the necessary funds to continue their work overseas. An increase to $100 million for FAS will help counteract the decline of the dollar.

Last year, 42 adult Mediterranean fruit flies were trapped in California beginning in July. One day we are going to lose the battle with APHIS if not provided sufficient funds and inspection authority.

United fully supports the $6.5 million proposed increase for agricultural quarantine inspection, as one part of a multiphase effort to prevent damaging pests and diseases from entering this country.

However, $9.7 million for Medfly detection and eradication is not sufficient. Although the proposal would provide enough money for domestic trapping, it will be very difficult to maintain the current Medfly barrier in Guatemala. The barrier is very fragile, and last year's outbreaks in Beliz and Mexico are real life examples of what happens when funds are depleted.

The success of the screwworm eradication program in Central America exemplifies what APHIS could do with proper funding for Medfly eradication in Central America.

The cost of fighting Medfly and similar pests becomes dramatically higher when we have to fight and eradicate these pests here at home, and that does not begin to include the millions of dollars lost when foreign governments shut their doors to our exports because of an infestation.

United, once again, urges the committee to support Medfly eradication in Central America by appropriating $3 million to move the barrier southward and provide the needed protection to America's fruit industry.

The work of the Yakima, WA, Agricultural Research Laboratory is very important to the fruit and vegetable industry, providing necessary research on pesticide residues, insect problems, and quarantine treatments to allow apple exports to Japan.

United urges that an appropriation of $10 million be provided for the building of a new facility.

The Congress was most helpful last year in appropriating $500,000 to begin a research project to eradicate Trifly in Hawaii. The cost to carry out the eradication pilot project in fiscal year 1989 will be $1.2 million.

Last year, thanks to the efforts of Congress, $6 million was appropriated to upgrade the ARS facilities in Beltsville. This was an important first step. To continue this work, we request an additional $19 million for fiscal year 1989.

The administration has finally taken some firm action to address the problem of improving food import inspection by recommending an additional $2.8 million for the Food and Drug Administration. This is a step in the right direction.

These additional resources we request should be used to locate some of the FDA regional laboratories which do the pesticide residue analysis to ports of entry.

Two specific examples are the laboratories that do the analysis for Nogales, AZ, and Hildago, TX. In both cases the laboratories are 600 and 500 miles away, respectively, in Los Angeles and Dallas.

Because it takes so long for the samples to be tested for pesticide residues—up to 4 days in some cases—the produce is often marketed to prevent it from perishing before the tests are completed. If the laboratories were located at the port of entry, the product could be held for 24 hours while the samples were taken. This would ensure safer food supplies for the American public.

Thank you for this opportunity to testify, and I would be pleased to answer any questions you may have.

Senator **Burdick**. Thank you. I have a couple of questions for you.

As you know, the committee has been supportive of the Medfly Program, despite questions raised about the methods employed to retain the barrier in Central America. On what basis has your association claimed that the $9.7 million appropriated last year for detection and eradication is not sufficient for 1989?

Ms. **Bomer**. The $9.7 million goes toward the domestic tracking, which would be sufficient. However, it is our understanding that it is not sufficient to move the barrier southward in Guatemala. It would be sufficient to maintain the current barrier.

Our fear, however, is that just by maintaining the current barrier you can still have outbreaks in Beliz and Mexico, as we experienced last year.

Senator **Burdick**. When the Foreign Agricultural Service appeared before the committee, they mentioned that the dollar appears to be stabilizing overseas. For what other reasons do you believe we should appropriate $100 million for the Foreign Agricultural Service?

Ms. **Bomer**. Well, with the decline of the dollar over the past couple of years, their budget has not been able to keep up with that decline.

Last year we had requested an increase to $100 million as well, and we still think that that is necessary to make up for lost progress.

Senator **Burdick**. I believe you testified that we had committed $6 million to upgrade the facilities at Beltsville?

Ms. **Bomer**. That is correct.

Senator **Burdick**. I think the correct figure should be $11 million.

Ms. **Bomer**. Well, then the information provided to me was wrong; but $11 million is much better.

Senator **Burdick**. Thank you very much.

Ms. **Bomer**. Thank you.

[The statement follows:]

## STATEMENT OF SHARON E. BOMER

### SUMMARY

In summary, United requests:

- IR-4: Continuation of funding for pesticide clearance program and Administration's request for enhancing pesticide impact assessments program.

- Office of Transportation: Funding at current level of $2.4 million.

- Foreign Agricultural Service: Increase in funding to $100 million.

- APHIS: $6.5 million increase for Agricultural Quarantine Inspections and $3 million for medfly eradication in Central America.

- ARS: $10 million for new laboratory in Yakima, Washington; full funding of $1.2 million of Hawaii trifly eradication; $19 million for upgrading Beltsville laboratories.

- FDA: Establish laboratories at ports of entry for pesticide residue inspections of imported foods.

Good afternoon, Mr. Chairman and members of the Subcommittee, I am Sharon E. Bomer, Director of Government Relations for the United Fresh Fruit and Vegetable Association. United is the national trade association representing the fresh produce industry. Our 2,500 member companies handle 80 percent of the fresh fruits, vegetables and nuts commercially marketed in the United States.

Last year, Congress and the Administration made some very important strides providing support to the American produce industry particularly in the areas of food safety and export promotion. We greatly appreciate this committee's efforts.

Unfortunately, the Administration has once again proposed a budget with some major gaps. United strongly urges the Committee to support funding for the following programs at the highest possible level to assure the continued safety of and public confidence in the American food supply.

### U.S. DEPARTMENT OF AGRICULTURE

#### Cooperative State Research Service

A continuation of funding for the Interregional Project-4 (IR-4) pesticide clearance program and enhancement of funding for the pesticide impact assessments program is greatly needed. Without these important programs, the fresh fruit and vegetable industry would be at a tremendous disadvantage by not having needed pesticides available for minor crop uses.

#### Office of Transportation

Once again, the Administration has proposed a substantial cut in the budget for OT. Providing technical assistance to the produce industry to improve the quality and exportability of fresh fruits and vegetables is a very important service of OT. In addition, OT is beginning an investigation to determine the impact of the Shipping Act of 1984 on agriculture in preparation for congressional review next year. We urge Congress to fund OT at its current level of $2.4 million.

Foreign Agricultural Service

The exports of fresh fruits and vegetables is on the rebound thanks in part to the Cooperator and Targeted Export Assistance programs. To continue this trend, we must provide FAS the necessary funds to continue their work overseas. An increase to $100 million for FAS will help counteract the decline of the dollar.

United is concerned about the proposed reduction in funds for the Cooperator program. Although there is a substantial increase in the TEA program, it cannot replace the Cooperator program. TEA relies on the use of surplus commodities, the stocks of which are being drawn down, and one day may not exist. Continuation of the Cooperator program is needed to ensure the expansion of export markets.

Animal and Plant Health Inspection Service

Last year 42 adult mediterranean fruit flies were trapped in California beginning in July. It was not until this February that APHIS finally declared the pest eradicated. One day we are going to lose the battle if APHIS is not provided sufficient funds and inspection authority. United fully supports the $6.5 million proposed increase for Agricultural Quarantine Inspections as one part of the multiphase effort to prevent damaging pests and diseases from entering this country.

However, $9.7 million for medfly detection and eradication is not sufficient. Although the proposal would provide enough money for domestic trapping, it will be very difficult to maintain the current medfly barrier in Guatemala. The barrier is very fragile and last year's outbreaks in Belize and Mexico are real life examples of what happens when funds are depleted. Unfortunately APHIS no longer has much needed contingency funds to shift to emergency situations.

The success of the screwworm eradication program in Central America exemplifies what APHIS could do with proper funding for medfly eradication in Central America. The cost of fighting medfly and similar pests becomes dramatically higher when we have to fight and eradicate these pests here at home, and that does not begin to include the millions of dollars lost when foreign governments shut their doors to our exports because of an infestation. United once again urges the Committee to support medfly eradication in Central America by appropriating $3 million to move the barrier south and provide the needed protection to America's fruit industry.

Agricultural Research Service

A. YAKIMA AGRICULTURAL RESEARCH LABORATORY: The work of this laboratory is very important to the fruit and vegetable industry providing necessary research on pesticide residues, insect problems and quarantine treatments to allow apple exports to Japan. The current laboratory has many impediments to progress due to inadequacies caused by obsolescence, overcrowding and location in an urban setting. A new location has been found and is owned by the Tree Fruit Research Commission, an industry supported research organization. United urges that an appropriation of $10 million be provided for the building of a new facility.

B. HAWAII TRIFLY ERADICATION: The Committee was most helpful last year in appropriating $500,000 to begin a research project to eradicate trifly in Hawaii. The cost to carry out the eradication pilot project in FY 89 is $1.2 million. United urges the Commitee to fully fund the project.

C. GENERAL RESEARCH: The use of pesticides is coming under increasing attack by environmental and consumer groups. United fully supports the work of ARS to research integrated pest management techniques utilizing the safe use of pesticides and alternatives to pesticides. In addition, ARS does some very important work on quarantine research. Progress in the past has been made on opening export markets for apples, papaya, nectarines, stone fruit, citrus, and walnuts. We urge the committee to vigorously support these efforts to improve the competitive advantage of our exports and the quality of our food supply.

D. BELTSVILLE AGRICULTURAL RESERACH CENTER: Last year, thanks to the efforts of this Committee, $6 million was appropriated to upgrade the facilities at Beltsville. This was an important first step. To continue this work, we request an additional $19 million for fiscal year 1989.

Agricultural Marketing Service:

United has examined the budget for the Agricultural Marketing Service, Fruit and Vegetable Division, and is satisfied with the Administration's proposal.

FOOD AND DRUG ADMINISTRATION

The Administration has finally taken some firm action to address the problem of improving food import inspections by recommending an additional 41 extra man hours and $2.8 million. This is a step in the right direction. These additional resources should be used to relocate some of the laboratories which do the pesticide residue analyses to ports of entry. Two specific examples are the laboratories that do the analyses for Nogales, Arizona and Hidalgo, Texas. In both cases the laboratories are 600 and 500 miles away respectively in Los Angeles and Dallas. Because it takes so long for the samples to be tested for pesticide residues the produce is often marketed to prevent the produce from perishing before the tests are completed. If the laboratories were located at the port of entry, product could be held for 24 hours while the samples were tested. This would ensure a safer food supply.

Thank you for this opportunity. I would be pleased to answer any questions you may have.

## BAYLOR COLLEGE OF MEDICINE

### STATEMENT OF DR. BUFORD NICHOLS, DIRECTOR, CHILDREN'S NUTRITION RESEARCH CENTER

### ACCOMPANIED BY GAYLE McNUTT, DIRECTOR OF COMMUNICATIONS

Senator BURDICK. Our next witnesses will be Dr. Buford Nichols, the director, and D. Gayle McNutt, the director of communications, Children's Nutrition Research Center, Baylor College of Medicine.

Proceed any way you wish.

Dr. NICHOLS. Thank you, Senator Burdick. It is an opportunity to be with you and our friends again.

We have two particular points we want to make concerning the Children's Nutrition Research Center. It is one of the five nutrition centers. One of the first centers to be established during the new wave was the one at Grand Forks. You are very closely integrated with that center.

The first point of information is the completion of our new building. This committee granted the appropriations to build a new facility for children's nutrition research.

As illustrated in this photograph, it is an 11-story building with about 200,000 net square feet. It is specifically designed for the work of the Children's Nutrition Research Center.

On the second and third floors is a metabolic unit in which we will carry out investigations of nutritional needs.

Gayle, would you take that up so the Senator can see it, please?

Senator BURDICK. I could see it, but there was a glare on it. Thank you.

Dr. NICHOLS. This very fine building is approaching completion, and we will be moving in in August. We hope to have the formal dedication on October 7, and we would love to have you attend the dedication. We will be in touch with you about that.

This provides the opportunity to expand the program to meet the major mission. We are asking specific appropriation increases to allow us to capitalize on this opportunity to study not nutritional needs but food needs.

On that second picture that Gayle brought up, you will see an internal photograph of the greenhouse. This is the first time that a human nutrition center in the United States has been developed in association with plant physiologists. We are presently working to locate appropriate plant physiologists in the Agricultural Research Service to move to the CNRC and help with the program.

But to show you the kind of work that we have underway, I brought here some grains that have been labeled with Carbon 13. Carbon 13 is a heavy isotope of carbon. We were able to add Carbon 13 $CO_2$ to these grains and enrich them tremendously with a nontoxic, safe marker, so that we can differentiate the carbon from the diet from foods from the carbon already present in the body.

We have here corn, sorghum, rice, wheat flour and wheat bran, and soybeans. Soybeans are particularly important, because one-fourth of the infant formulas sold in this country are soy formulas.

What is the significance of labeling these grains and the soybeans?

In order to know what the needs are for growth, you have to differentiate in some subtle way, a safe way, the food that is supplied from the body stores. And this Carbon 13 labeled food will allow us to determine the food requirements of infants and their mothers during reproduction.

We think this is a unique change in nutrition research in the United States, because for the first time we are asking the question "What are the food needs?" and not "What are the nutrient needs?" We are not addressing the building blocks, we are addressing the food needs. This is a significant changing point, and it is only possible through our relationship with ARS—linking plant physiologists, animal physiologists, with human nutritionists—that this becomes possible.

We thank the committee for allowing this infrastructure to take place, and we are looking forward to a rapid development of this program, linking plant and animal production to human food needs.

Thank you, Mr. Burdick.

Dr. NICHOLS. Do you have any questions?

Senator **Burdick**. Do you have anything to add to that testimony, Mr. McNutt?

Mr. **McNutt**. No, sir; I will just be glad to answer any questions that I can on behalf of Baylor College of Medicine.

Senator **Burdick**. Your 1989 budget for the Children's Nutrition Research Center includes $6 million for the establishment of three new units. Would these funds be used for equipment and startup of the new units? Would this level of funding be anticipated for future operating costs for the units? Or could a reduction of funds for operating costs be anticipated?

Dr. **Nichols**. These funds are not for equipping. You were very wise in the appropriations for the building. In the language of the appropriations you included a substantial portion for scientific equipment. These are for operations of three basic units: Our metabolic unit, which has had one bed in it, but now we are going to 12 beds, which brings us to the size of the one at Grand Forks plus Tufts in San Francisco.

In addition, we are going to expand the field works, so that we can study the metabolism and the utilization of these foods in free-living populations at home. Obviously, it is somewhat of an artificial environment in our metabolic unit.

Third, to bring in the necessary animal scientists and plant physiologists to make sure that when we have labeled rice, for instance, that this rice is exactly like the rice normally present in the normal U.S. diet.

So, it is very important that, if we are going to talk about food needs, we have to make sure that the food products used in our research are absolutely the same as those the mothers get in the supermarket.

Senator **Burdick**. Let me get this clear in my thinking. This $6 million that you are talking about, would it be recurring year after year?

Dr. **Nichols**. It will be recurring, yes. This is a major expansion of our program to about the level of the programs at Tufts and Grand Forks.

Senator **Burdick**. When research on infant feeding methods yields positive results, is information about the findings made available to the Food and Nutrition Service for dissemination to WIC clinics? To what private and public agencies is the information distributed, if it is so distributed?

Dr. **Nichols**. We have two basic avenues. We distribute our information through the scientific literature but, in addition, we do a lot of formal and informal consultation with the Food and Nutrition Service.

We have undertaken major efforts to define techniques for evaluating food intake of WIC participants. Also, we consult with them on a number of specific issues, such as the requirement of iron in the School Lunch Program, and each year they present us with a list of their priorities of research topics they would like us to address.

During the coming year, we will be addressing a major concern they have concerning the bioavailability of iron in the School Lunch Program and in the WIC Program. These are major issues.

We do try to provide them with the scientific and technical guidance. We do listen to their concerns about scientific issues on which their programmatic decisions need to be made.

Senator **Burdick**. Senator Bumpers.

Senator **Bumpers**. Thank you, Mr. Chairman. I will be very brief.

I didn't realize, frankly, that we had this facility down at Baylor, and I am very pleased that we do. I am not prepared to go into depth on this, but it is an area of great interest to me and always has been, just like the Maternal and Child Health Care and the WIC Program have been.

We hear so much these days about babies having babies, teenage girls having babies when their own bodies have not been fully developed, and the fetus and the mother are both competing for the same caloric intake and protein.

Is there an optimum age for women to start childbearing, for the benefit of the child?

Dr. **Nichols**. In general, 18 to 26 years is the time when birth weights are optimal.

Senator **Bumpers**. Eighteen to twenty-six?

Dr. **Nichols**. That is right.

Now, you have falling off of weights on either side. The great falloff in weight occurs after 32 years.

Senator **Bumpers**. What happens after 32 years?

Dr. **Nichols**. There is a drop in average birthweight.

Senator **Bumpers**. Is there also an increase in birth defects after 32?

Dr. **Nichols**. Yes, sir.

Senator **Bumpers**. When does the age of a woman really get pretty critical? My mother was 37 years old when I was born, and my wife was 37 when my daughter was born.

Dr. **Nichols**. Well, I will remind you of the statistician who drowned in a lake that averaged half an inch deep. You know, these are all averages and statistical probabilities. But the probability of birth defects goes up if the mother smokes, if she takes alcohol, and if she is over 32 years of age. And of those, smoking and alcohol and drug addiction—I didn't include that—those are all greater in their impact than age.

Senator **Bumpers**. But in the absence of drugs, cigarettes and alcohol, and given a normal family where the dietary intake is more than adequate as prescribed by the doctor, you still have the increase going up as the age increases, is that correct?

Dr. **Nichols**. That is right. And that is why we in medicine usually suggest amniocentisis for women over 32 years of age during conception, to make sure that the fetus is developing appropriately.

Senator **Bumpers**. Now, what is the most important ingredient in diet? Is it protein content, carbohydrates, cholesterol? What is the most important thing about a diet for the benefit of the baby?

Dr. **Nichols**. Well, you have two aspects: The quantity of the diet is important. For instance, there have been numerous studies working with a disadvantaged population such as in Chile or Mexico or Central America and Southeast Asia, where if you give about an additional 800 calories a day to a pregnant woman, you can increase birthweight about 300 grams. Three hundred grams is not quite a pound, but that is a significant improvement, because if you look at infant mortality, it falls in a logarithmic way with birthweight. And if you increase birthweight 300 grams, you drop infant mortality rate 50 percent during that steep part of the curve.

So, 300 grams is a significant increase. Now, that is related specifically to populations that have inadequate calories.

There are a number of specific issues involved with other areas. Probably the most important factors in the United States are two: One is cigarette smoking. You can predict a 350-gram reduction in birthweight, on the average, in women who smoke throughout pregnancy.

The second issue is the high incidence of low birthweight in the black population in this country. This accounts for 60 percent of the residual infant mortality in the United States.

Senator BUMPERS. Sixty percent?

Dr. NICHOLS. Sixty percent of the infant mortality is due to the very high frequency of low birthweight among black families. Now, we don't know at this point if it is genetic or not; but, if you look back over the last 20 years, the incidence of low birthweight in the black families has been falling. If it were genetic, you would argue that it would be unchanged by the improving health care systems; but it continues to fall, which suggests that it can be impacted some way.

This year we started a very important project to study the indigent population that deliver in Houston. We have the largest obstetrical indigent population in the United States at Jefferson Davis Hospital in Houston.

We are beginning an investigation to determine the nutritional factors associated with low birthweight in the black population, the Mexican-American population, and the white population.

For some reason, the average income is lower for the Mexican-American population in Houston than it is for the black, but the blacks have a higher incidence of low birthweight.

Senator BUMPERS. So it may be genetic? Is that what you are saying, that it could be genetic?

Dr. NICHOLS. It could be partially genetic, and we have to sort that out. But that is one of the priorities for our future investigation in the center. We will admit these black mothers during pregnancy to our metabolic unit and do meticulous studies to determine how they utilize foods.

There are some key areas involved with iron requirement, peridoxine requirement, and particularly questions about the availability of adequate calories.

Senator BUMPERS. You can't say categorically, then, that low birthweight is always a factor of inadequate diet, can you?

Dr. NICHOLS. No, sir; but there have been many studies that show that you can increase birthweight on the average by providing nutritional supplements.

Senator BUMPERS. But you can't guarantee it.

Dr. NICHOLS. Of course, that is the philosophy behind the WIC Program and the philosophy behind the new regulations on Medicare—availability for all pregnant women with needs.

Senator **Bumpers**. Can you say that an adequate sex life—that is, a fairly satisfactory sex life—is of importance, then, to couples who are over 32 years of age?

Dr. **Nichols**. Well, I am speaking at a nutritional and agricultural hearing.

Senator **Bumpers**. I don't want Jesse Helms to accuse me of promoting sexual activity of any kind, homosexual or heterosexual, but is that a fair statement?

Dr. **Nichols**. I think it is part of family living, and I think the most important thing, as a pediatrician, is that a child be wanted. And a wanted child that is not an accident, that is wanted and appreciated by the family throughout pregnancy and throughout childhood is the most priceless treasure that our Nation has. And that is what we are trying to foster and promote.

Basically, what I am addressing is: How does nutrition play a role in the quality of life in the future? Not just the quantity but the quality of life.

Senator **Bumpers**. Just one final question: Are we about 18th now in infant mortality?

Dr. **Nichols**. That is right. But as I said, the reason for that is the high incidence of low birthweight in the black population in the United States. And I believe that can be addressed, at least to some degree.

If you look at Japan and Sweden, they are lower than we are at a 3-percent low birthweight. But we are 12 percent low birthweight. There is a difference there.

Senator **Bumpers**. But there is also a correlation, you know. I appreciate your candor on this, and these are interesting figures.

Of course, the way we have always operated around here is, the correlation between low birthweight is also a factor of poverty, because the poverty rate among blacks is three or four times as high as it is among whites.

Dr. **Nichols**. Well, Senator, I would point out that half of the children in the United States are living in families below the poverty level.

Senator **Bumpers**. Half the children?

Dr. **Nichols**. Half of the children.

Senator **Bumpers**. What do you define as "children"?

Dr. **Nichols**. Under 14 years of age.

Senator **Bumpers**. Well, the administration is telling us—and they are not proud of it—that figure is 22 percent. Are you telling me that 50 percent of the children in this country live below the poverty line?

Dr. **Nichols**. Yes, sir.

Senator **Bumpers**. Where did you get that figure?

Dr. **Nichols**. I would be glad to send you my articles on it.

Senator **Bumpers**. Well, I would like very much to get that.

Dr. **Nichols**. Maybe we have rounded it to 2 or 5 percent, but it is in that order of magnitude.

Senator **Bumpers**. Thank you very much, Mr. Chairman.

And thank you, Dr. Nichols.

Dr. **Nichols**. It is good to speak to you, sir.

Senator **Burdick**. As long as we are on this subject, what is the life expectancy of the American Indian?

Dr. NICHOLS. The American Indian? I can't tell you that figure, sir. I don't know. It is a good question. I will tell you one thing, there are special populations that have special needs in this country.

Senator BURDICK. I was told the life expectancy is very short, and I am trying to figure out why—shorter than the average.

Dr. NICHOLS. I don't know that. I am sure that the data are available from CDC, but I don't have it.

Thank you, sir.

Senator BURDICK. Thank you very much.

[The statement follows:]

## STATEMENT OF BUFORD L. NICHOLS, JR.

It is a privilege to appear again before the Subcommittee. I am pleased to report to you that The Children's Nutrition Research Center has completed another year of noteworthy achievements. The Children's Nutrition Research Center at Baylor College of Medicine was founded in November 1978 by the U.S. Department of Agriculture and is operated by the Agricultural Research Service through a Cooperative Agreement with Baylor College of Medicine. On October 7, 1988, we will dedicate our new $55 million permanent facility, and on November 3, 1988, we will mark the 10th anniversary of successful mission-oriented research which has served the mothers and children of America. Today, I will discuss briefly our major accomplishments during the past ten years.

**Current Accomplishments**

- We have made great strides in understanding the importance of a mother's milk to her infant's growth and well-being. We now know that a mother's diet affects the composition of the milk she produces; for example, the amount of fat in the mother's diet affects the amount and type of fat in her milk. We have found also that an infant is able to use the calories from his mother's milk more efficiently than he uses those from commercial infant formulas.

- We have learned that premature infants who need special formulas to promote their growth and development are unable to digest the calcium supplements included in some special commercial formulas. Calcium is often included to improve bone growth.

- We also have discovered that infants can digest starches efficiently; the break-down of starches into simple sugars takes place in the mouth, stomach, and small intestine. From our research, we now know that this process also takes place in the large intestine.

- We have made exciting advances in understanding the nutrient needs of infants and their digestion of these nutrients. We have learned that the basic nutrients needed to build and repair tissue may vary during the normal daily cycle of eating and sleeping.

- CNRC scientists have developed methods to make many types of measurements. Using stable, nonradioactive isotopes as tracers, we have developed methods to enrich (or label) plants, such as rice, with stable isotopic carbon. The labeled plants are then processed into foods, such as rice cereal, and fed to infants or nursing mothers. The nutrients labeled with carbon are broken down during digestion and combine with other elements throughout the body. The labeled carbon can be traced to tell us whether the calories in the food were available to the infant or the mother.

- We also have developed a method to measure how fast normal infants and their mothers produce new cholesterol from the foods they eat. We have also developed the means to evaluate the food intake of the participants in the Womens, Infants and Children (WIC) program.

**Future Agricultural Challenges**

Since its founding in 1862, the Department of Agriculture has been charged with the responsibility to evaluate the quality of the American diet. Hundreds of investigations have evaluated the digestibility or availability of the nutrients in the food we eat. Many investigations have measured the composition of the diet and the nutrients lost in excretions. In 1905, Folin explained that to measure true digestibility of a food, we must be able to measure the interchange between food consumed and body stores. Various attempts have been made to sort out these two compartments. Progress to determine food needs has been at a standstill because of this important biological problem.

A breakthrough in research methodology at the Children's Nutrition Research Center may solve this problem. Stable isotopes have provided the means to meet this challenge. The CNRC has the world's largest facility for the measurement of stable isotopes in minute quantities of biological fluids such as saliva, breath water vapor, blood, urine, human milk, and feces. Working with scientists from the Department of Agriculture, we have developed methods to incorporate stable isotopes of carbon into food starches such as rice, wheat, sorghum, and soy. With continued Departmental participation, we will develop methods to incorporate stable isotopes into plant proteins, minerals, and vitamins. Working with the Department scientists, we will feed these plant materials to farm animals. We will then process the plant and animal foods for use in our studies of mothers and infants. We will feed these stable isotopically-labeled foods to mothers and infants under controlled metabolic ward conditions. The labeled foods can then be distinguished from unlabeled body stores, after which we can determine how specific nutrients contribute to the growth of infants and children.

### Present CNRC Program Needs

Although the CNRC has grown during its first decade, expansion of its research programs has been limited by space and the lack of specialized facilities. These limitations will be overcome when we move into our unique research facility to be dedicated on October 7, 1988. The building will include facilities that will enable us to meet future agricultural challenges to measure the nutrient needs of women and children.

The building will include environmental growth chambers where stable, nonradioactive isotopes will be introduced into plant foods. Specialized facilities will enable us to introduce stable isotopes into animal food products. Food preparation facilities will enable us to process and prepare stable isotopically-labeled foods for human feeding studies. A metabolic unit has been designed for volunteers (mothers and children) who will participate in the studies of food needs. An epidemiology unit has been designed in which isotopically-labeled foods will be used for studies performed within the home environment. These studies will determine how the diet contributes to the quality of human health during growth and development.

### Research Agenda of the Expanded CNRC Program.

The Center will continue to explore the relationships between food intake and the growth and development of infants and children.

- We must determine the unique nutrients that will maintain health and ensure normal growth and development.

- We must identify the special nutrient needs of pregnant and lactating women and the developing fetus, so that specific dietary recommendations can be made to ensure maternal health and optimal fetal development.

- We must determine the extent to which the nutrients present in food may be absorbed and utilized so that recommended nutrient allowances may be translated into practical dietary recommendations.

### Appropriation Request for New Programs

Appropriations increases of $6 million are requested during Fiscal Year 1989 to start three new units for which space has been provided in the new research facility. We anticipate that Center research programs will be fully funded by 1991.

- The Metabolic Research Unit will provide a controlled environment in which precise measurements will be made of the nutrient requirements of pregnant and lactating women and their children.

- The Epidemiology Research Unit will enable studies of the food intake and nutritional status of pregnant and lactating women and their children under their usual living circumstances.

- The Food Bioavailability Unit will enable studies of nutrient digestion and utilization in pregnant and lactating women and their children to determine food needs for these populations. The nutrients will be labeled with stable (nonradioactive) isotopes. This unit includes funding for federal scientists.

### 1989 Appropriation Request

| | |
|---|---|
| Existing budget | $ 7,700,000 |
| Funds to establish Metabolic Research Unit | 2,000,000 |
| Funds to establish Epidemiologic Research Unit | 2,000,000 |
| Funds to establish Food Bioavailability Unit | 2,000,000 |
| Total request | $13,700,000 |

## LETTER FROM BUFORD L. NICHOLS

Senator Dale Bumpers, Arkansas
Agriculture, Rural Development &
Related Agencies
SD-140 Dirksen Senate Office Bldg.
Washington, D.C. 20510
Attn: Koni Gleason
Staff Assistant

May 6, 1988

Dear Senator Bumpers:

I had the opportunity to appear before you during the Public Testimony session of the Agriculture, Rural Development, and Related Agencies Appropriations Subcommittee on April 27, 1988.

During our discussions following my presentation, I stated that half of the children born in the United States today are in families with incomes below the poverty level. You questioned me on the issue and I stood firm on my statement. I am writing to apologize for an erroneous statement on my part. Based on the 1985 data which I have at hand, the actual rate is 22.5% of the children in the United States live in families under the poverty level. However, 46% of Black and 49% of Hispanic children are living in families whose incomes are below the poverty level. My statement was based upon Houston data which reflect that 16 out of 32 thousand births each year are delivered at the Harris County Hospital District obstetrical service, serving the indigent population of our County. I would be glad to provide detailed information on Harris County.

Please accept my apologies for incorrect recall of the precise figures.

I enjoyed our conversation across the Hearing table and would like to have the opportunity to meet with you to discuss issues of importance to future economic and social policy to our country.

Yours truly,

B Nichols

Buford L. Nichols, M.D.
Professor, Pediatrics & Physiology
Director,
Children's Nutrition Research Center

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## BARNES-AASTAD SOIL AND WATER RESEARCH CENTER

### STATEMENT OF WILLARD R. MICKLISH, DIRECTOR

### ACCOMPANIED BY DR. JOHN F. STOCK, DIRECTOR, NORTH CENTRAL SOIL AND WATER RESEARCH LAB

Senator BURDICK. I will call Mr. Willard R. Micklish, director, and John F. Stock, director, North Central Soil and Water Research Lab.

Mr. MICKLISH. Thank you, Senator Burdick.

We have been coming here for over 20 years. The Barnes-Aastad Soil and Water Research Center is a businessman and farm group that supports the North Central Soil and Water Research Center at Morris, MN.

Both Dr. Stock and I have been here before your committee, and it is always a pleasure that you are chairing it today.

The research at the Morris facility is on water quality, which is the highest priority we have today.

I want to thank you very much for funding a systems analyst for the lab last year. This is an individual who brings together all of the research. It got cut down to $90,000 for this systems analyst, and basically we now are asking the committee to furnish the balance of the funds for that systems analyst, which we understand is about another $80,000 to $90,000.

I would like to introduce Dr. John Stock, here, to my right, who was born and raised on a farm. He is now a medical doctor who specializes in internal medicine. I would like to have him make a few remarks.

But first, Senator Burdick, I would like to have our regular testimony entered into the record.

Senator BURDICK. It will be received in the record in full.

Mr. MICKLISH. Thank you.

Dr. Stock.

Dr. STOCK. Today, as some of our preceding distinguished witnesses have stated, two critical areas now are the recovery of the farm economy and water quality.

The research laboratory at Morris, MN, is a pioneer in addressing solutions to enhance rural economic recovery and protect our Nation's surface and ground water quality.

The practice of lower input agricultural methods such as minimum tillage, plus more efficient and prudent use of pesticides, herbicides, and fertilizers, leads to less risk of water supply contamination.

At the Morris, MN, laboratory, two scientists have developed a computer model to pinpoint the sources of soil, fertilizer, and chemical losses within a watershed area. This program is called by the acronym AGNPS—Agricultural Nonpoint Pollution Sources.

By the use of the computer model, solutions to correct problems within a watershed area can be made accurately, quickly, and economically. The Environmental Protection Agency and the Soil Conservation Service are now using AGNPS.

The reliance on AGNPS will increase in the future as these agencies strive to protect our Nation's ground and surface water supplies. Much additional research will be needed to make this computer system even more successful. This is an area that the Morris Station, again, is a pioneer in.

In summary, concomitant research into lower input agricultural practices and AGNPS will serve to improve our Nation's water quality.

I have been brief on purpose. Do you have any questions?

Senator BURDICK. Yes; I have a question. How long have either one of you gentlemen lived in Morris?

Mr. MICKLISH. I have all my life.

Dr. STOCK. All of my life, and I am 41—except for the years of training.

Senator BURDICK. Did either one of you ever know a fellow by the name of Clayton Gaye?

Mr. MICKLISH. Very, very well. He was responsible for the University of Minnesota at Morris.

Dr. STOCK. He was my family's attorney.

Senator BURDICK. I played football with him.

Mr. Micklish. Is that right? I gave his widow your greetings last time, and she was very, very pleased. Mrs. Clayton Gaye was very pleased.

Dr. Stock. Eleanor.

Mr. Micklish. Eleanor Gaye.

Senator Burdick. Well, that is interesting.

Your statement emphasizes the work on production system models at the North Central Laboratory. You mentioned that a full performance-level of funding is required. What dollar amount of funding are you requesting for 1989?

Dr. Stock. The exact dollar amount that is the budget of the Agricultural Research Center. I don't have that information, but we have maintained full funding, with the exception of the additional funding needed for the systems analyst. He was budgeted initially at $150,000. The amount appropriated last year was approximately $90,000, after the cutbacks.

The systems analyst, according to the scientists that we have talked to will require about $190,000 of funding, approximately.

Senator Burdick. What will be the major direction of research for the lab in 1989?

Dr. Stock. We will concentrate on lower input agriculture; in other words, such things as cutting the use of herbicides through plants that have a lower canopy. We will concentrate on systems of weed control that are narrower rows. We will concentrate on using AGNPS to predict the runoff of surface nutrients and herbicides and insecticides into the ground water supply. Obviously, preventing such losses will help the bottom line for all farmers, and we will naturally receive cooperation from them.

So, it is the various methods of obtaining lower inputs, and at the same time protecting the Nation's water quality.

Senator Burdick. Do you experiment any with what is called natural farming?

Dr. Stock. That is done at Rodale Press in Pennsylvania. The use of natural substances is being carried on out there, but not with the concentration that the water quality and low input methods are.

We do have one scientist who is interested in aeliopathy, which is the study of how one plant suppresses the growth of another. The substance that you find in an orange skin or in an alfalfa root will suppress the growth of plants around it. The natural use of substances such as that is being looked at by one scientist. The exact scale that that will apply, though, to farming in general remains to be determined.

Senator Burdick. But you do intend to investigate lower quantities of fertilizer on growth, do you not?

Dr. Stock. The first thing for lower quantities of fertilizer is to be certain that the fertilizer that is there is available and not lost in surface runoff and evaporation into the air.

So, the encapsulation of it, or the usage in a tillage system to make it available is one thing that is being studied.

Another area that is being studied is spring runoff. As thawing occurs in the spring, the soil can fracture very easily, and that is a dangerous time for runoff.

Other methods are hybrids that use the fertilizer best at a certain time so that application is timely.

Those are all topics that are being discussed.

If the application is timely, then not as much of it will be needed.

Senator **Burdick**. Thank you, gentlemen. Very good.

Mr. **Micklish**. Thank you, Senator.

Dr. **Stock**. Thank you.

[The statement follows:]

## STATEMENT OF WILLARD R. MICKLISH AND JOHN F. STOCK

As active board members of our association of concerned farmers and agri-businessmen, we speak to the problems of agriculture in the northern Corn Belt. Our interest in conserving the nation's soil and water resources prompts us to support USDA-ARS research in soil and water conservation and in particular of the ARS research conducted at the North Central Soil and Water Conservation Research Laboratory, Morris, Minnesota. The research program is directed at national and regional concerns that assist farmers in improving soil and water conservation and increasing the efficiency of agricultural production. We strongly support the research mission to develop sustainable production systems for northern climates while maintaining and improving the quality of our soil and water resources. The research involves cooperative efforts with the agricultural experiment stations of the University of Minnesota, South Dakota State University, and the USDA Northern Grain Insects Research Laboratory at Brookings, South Dakota.

With increased emphasis being placed on improving water quality in our nation together with continued emphasis on farmer profitability, it is imperative that the research community moves boldly forward to address these concerns. Great risks exist to both our surface and ground water resources from contamination due to agricultural chemicals, both nutrients and pesticides. At the same time, farmers are experiencing undue financial risks from inadequate fertility during critical plant growth periods and from pests, mainly weeds and insects. It is not simply a matter of applying more chemicals to control pests or eliminating pesticide use entirely because both extremes have serious financial consequences for the public. Obviously, an optimum intermediate solution needs to be attained. Unfortunately, much new knowledge needs to be obtained before such recommendations can be made with confidence.

There is much to be learned in the area of sustainable agriculture in order to optimize the quantity of energy expended in the form of fuel and chemicals with crop yield to maintain profitability. For example, savings can occur in the use of fertilizers if the amount applied is restricted to the amount that the plant can use. Such a concept combined with application at the time of plant requirement also minimizes the opportunity for fertilizers to leach below the management zone to become a contaminant. An analogous point can also be made relating to the use of pesticides at critical times, whether they be insecticides or herbicides. The concept is simple, but much remains to be learned about fertilizer use efficiency and pesticide efficacy under various types of management systems. The group of scientists at the Morris lab are actively working to obtain the required information and put it to use in production systems models designed to provide site specific information to farmers, thereby reducing his risk.

Such information is a precursor to custom prescribed tillage. Custom prescribed tillage defines the soil conditions for soil type, slope steepness, and climate combinations that need to be achieved to minimize risks during critical plant growth periods and prescribe the type and timing of cultural operations necessary to achieve ideal soil conditions. Included with this, prescriptions should include tillage recommendations for antecedent conditions outside the normal range, that is, drier or wetter than normal, and the resulting effect on crop production and soil properties. Custom prescribed tillage will require much design and development work to provide the proper equipment to meet the changed prescription needs automatically.

The research program at the Morris laboratory continues to focus on providing knowledge and recommendations for development of such production systems for the Northern Corn Belt. The ability to achieve these objectives was recently enhanced when the Laboratory received a funding increase to add a systems analyst position to assist with the integration of various components of sustainable production systems into user oriented models. The funding increase was partial in that not enough funds were received to enable the new position to operate at a full level of performance. We request that the new budget contain funding at the full performance level for this important position.

## SOIL AND WATER CONSERVATION SOCIETY

### STATEMENT OF NORMAN BERG, WASHINGTON REPRESENTATIVE

Senator **BURDICK**. Our next witness is Norman Berg, Washington representative of the Soil and Water Conservation Society.

Welcome to the committee, Mr. Berg. You have been here many times before, and we appreciate your testimony.

Mr. **BERG**. Thank you, Mr. Chairman. It is good to be back.

We do appreciate the opportunity to give testimony again on the next year's budget for all of the soil and water conservation programs of the USDA, and I would ask that my prepared statement be made part of the record.

Our society is a private nonprofit scientific and educational membership organization that has been dedicated for over four decades to the conservation of land water and related resources worldwide.

As one of the charter members and a fellow of our society, I am pleased to be able to continue to represent our members here in Washington and to be able to appear before your committee.

This is appropriate, inasmuch as this is Soil and Water Stewardship Week being honored throughout the country.

One of the reasons that we request time is to join many others to express appreciation for the support that your committee has given to the soil and water conservation programs of USDA for many, many years.

As you have noted, I have been privileged to appear before this committee since the early sixties, for a long time as a career SCS conservationist, and then for the past 6 years since leaving USDA serving as a representative of our society.

All of the soil and watershed activities of the several agencies of USDA are of interest to the members of our society, and to continue the ability to provide the help that is needed in research, and by extension the technical and financial conservation programs, has increasingly become dependent upon the actions of Congress, because the administration over this decade has too often tried to eliminate or to drastically reduce their ability to function.

The continued success of resource conservation and management programs in the United States can never be taken for granted.

Recently, the Department of Agriculture released a review draft of a national program for soil and water conservation. This is an update that follows their first national conservation program released to Congress in 1982, and it is supposed to cover a period from 1988 to 1997.

That document, along with an appraisal that was released last year, provides ample evidence that the Nation needs more, not less, attention to the condition of our soil and water.

Why should the Nation continue adequate funding for conservation? Well, the second RCA appraisal that I mentioned shows that the degradation of some of our land resources does continue, that water demand and supply are not in balance, and that processes intensified by agricultural production do pose possible threats to environmental quality and public health. Under current use and management, the productive capability of some of our agricultural land is not being maintained and there is a long list of problems in this area that are cited in that document.

The question that is not answered in their proposed national conservation program for the next decade is, what level of assistance is going to be required in research, extension, technical and financial programs? Another question is, which level of government is going to supply these needed financial requirements?

We would be most concerned that the partnership for conservation will, in the future, continue to have a strong Federal role. That future requires a strong and continuing commitment from each of the partners.

Now, funds provided by nonfederal governments have been increasing each year, and I have attached to my testimony a table of the appropriations of State and local governments.

However, again, the administration for next year proposes eliminating all of the traditional cost-share programs—that is, ACP, GPCP, Forestry Incentive, and Water Bank—and that is ill-advised. These programs have been subjected to intensive scrutiny in recent years. They have proven their value in helping solve some very serious conservation and economic problems that our farmers still face.

Now, nonfederal governments have added their funds to these programs, not as a substitution for but as complementary to the work, and this partnership needs to be strengthened, not abused.

As land users plan for and establish the resource management systems that are going to be required by the Conservation Compliance Provisions of the Food Security Act, these cost-share funds will be even more critical.

Also, as the past witness has pointed out, we should not neglect the Nation's farm production and management strategy needed for sustained production of food and fiber to meet the long-term needs, both domestic and export. This is basic to our economy.

Low-input agriculture is increasingly altering traditional production methods on some farms and ranches; farmers are seeking ways to reduce costs. There is a new mix of inputs that usually includes the substitution of labor, management, and machinery for the purchased inorganic materials. This method of farming benefits soil and water conservation.

Additional research and extension and onsite assistance to those ag producers willing to risk innovative methods of farming is underway.

Your support for work in this fiscal year is very much appreciated and, we feel, from the standpoint of our society, this should be expanded based on evidence that there are many practical proposals now coming into the Department from directors of extension and experiment stations, and from some farmers, for approval and funding.

Perhaps more can be done in fiscal 1989 to encourage this effort.

Finally, Mr. Chairman, when Congress enacted the Food Security Act that included Title XII, Conservation, we were then beginning a new half-century of soil and water conservation, with some reforms in the relationship between the USDA farm programs that had been traditional and the land users of the Nation.

The implementation of this landmark legislation is underway. Rules and regulations, as you know, are finally in place. There is a widespread effort to get information out to the farmers.

This is not the time nor place to get into details about this program, but our society sponsored a major conference in Kansas City last fall, and the results of that program that we had out there are available in a white paper that we could make available to the committee.

We have also within the last month sent out a questionnaire to one-fifth of the professionals at the county level—SCS, DCS, county ASCS directors, and county agents—asking for their views on all of the provisions of the farm bill. And when that is available, we will make it available to the committee if they would like to have it.

In my full statement, table 1 has the 1989 funding recommendations of our society. We do not agree with several administration proposals. We recognize you have the challenge of coping with Federal deficits, but we feel our suggestions for funding are workable and prudent.

Again, thanks, Mr. Chairman, for the long history of championing soil, water, and watershed resource conservation. It is appreciated by all who are concerned about the quality of life.

Thank you.

Senator BURDICK. Thank you.

If the President's budget were to achieve success in Congress, what would be the impact on our Nation over the next decade?

Mr. BERG. Well, I think the most serious deficiency in the proposal for next year in USDA's funding would be, again, the total zero funding for the cost-share activities. Those funds are so badly needed by the farmers, who are going to be required—and they are now underway with that effort—to by the end of 1989 to put on their highly erodible lands, their highly erodible croplands, a conservation system that they have 5 years to install, if they haven't gotten it done, or otherwise they lose all of the Farm Program benefits.

So I would see that as very, very serious to at least 800,000 farmers in this country who need updated plans and need an indication from the administration that the funds to help do some of that work will be available.

Senator BURDICK. Would you describe this approach as robbing Peter to pay Paul?

Mr. BERG. No; I think we are building on the tradition that we have had out here of sharing the job of installing the conservation systems on the farms and ranches of the country.

Society benefits from this work, and the benefits to the farmer are usually long term in terms of coming back to their value, and we feel that society should continue to share the cost of doing this work.

Now, I am making the point that the nonfederal governments are increasingly recognizing their responsibility, and I think the Federal Government should continue to match that capability.

Now, I do agree that if we are putting off doing some of these things in the interest of trying to handle the deficit problems, we are going to create more problems, and they will be more costly to solve in the future.

Senator **Burdick**. I thank you very much.

Mr. **Berg**. Thank you, Mr. Burdick.

[The statement follows:]

## STATEMENT OF NORMAN A. BERG

We appreciate this opportunity to again present testimony on the pending years(FY'89)Budget for all Soil,Water and Watershed programs of the U.S.Department of Agriculture.I would ask that my prepared statement be made part of the record.

The Soil & Water Conservation Society(SWCS) is a private,nonprofit scientific and educational organization devoted to the conservation of land,water,and related resources worldwild. Its mission is:to promote the science and art of good land and water use so that mankind can use and enjoy natural resource benefits forever.SWCS helps to formulate workable recommendations on conservation policy issues.The distinctive characteristic of SWCS is its multidisciplinary,multi-institutional membership.Some members conduct applied or basic research,some teach in the land and water related sciences, some work with landowners and operators in applying conservation practices to the land.Others practice soil and water conservation,on their own or public lands.Many others may not be employed or studying directly in a natural resources field,but have a profound interest in the stewardship of natural resources.As one of the Charter members and a Fellow of our Society,I'm pleased to be able to continue to represent our members in a variety of ways in Washington.

One of the reasons that we request time each year is to join many others in an expression of appreciation for the support this Committee has given for soil and water conservation programs of the U.S.Department of Agriculture over many years.As one of those privileged to appear before this Committee since the early 1960's,as a career conservationist,I learned from experience the importance of your work,dedication,and action. Now,over the past six years since leaving U.S.D.A.,that long-term experience is of value when evaluating budget proposals.

All of the soil,water,and watershed activities of the several agencies of the U.S.Department of Agriculture are of interest to SWCS.Their continued ability to provide assistance needed in research,extension,technical,and financial conservation programs has increasingly become dependent upon the actions of Congress.This Administration has,too often in the past, tried to eliminate and/or drastically reduce their ability to function to meet the increased need for programs that assist the landowners and users of the Nation's soil and water as they produce the food and fiber needed by all our citizens. The continued success of resource conservation and management programs in the United States can never be taken for granted. Each level of government has an important role in protecting the resources that are basic to the economy of the Nation. Development of a local,state,and national sharing of the task with the private sector has been most gratifying.This has not just happened.It has taken years of effort and concern by you and many others,including our Society,to build this network. If the Nation were to abandon this time-tested approach used to address the soil,water,and watershed problems challenging us now and in the next decade and century,the impact on this partnership would be most difficult to measure.That is why we support the traditional programs along with new initiatives.

Recently the Department of Agriculture released a review draft of *A National Program for Soil and Water Conservation*. This 1988-97 Update follows a draft of the *Second RCA Appraisal* released to the public in 1987.These two documents along with the data from the 1982 National Resources Inventory(NRI)provide ample evidence that the U.S.needs more,not less,attention to the condition of our soil and water.The traditional programs are working and have been strengthened by the Conservation Provisions of the Food Security Act of 1985.The resource goals that will be given top priority in USDA's conservation activities for the years 1988 through 1997 are:

1.Reduce the damage caused by excessive soil erosion on crop, pasture,range,forest,and other rural lands.
2.Protect the quality of ground and surface water against harmful contamination by nonpoint sources.

They do say that: "although these two resources problems are identified as both Federal and State priorities in much of the Nation,there are other areas where other resource problems have been assigned higher priority by State and local governments.In those areas,USDA will provide assistance in addressing the concerns assigned highest priority in State and district plans".A question that is not answered is what level of assistance in research,extension,technical and other financial programs will be needed to meet these needs.Another question that should be answered is: what level of government will be asked to provide the programs needed.We would be most concerned that the partnership for conservation will,in the future,continue to have a strong federal role.That future requires a strong and continuing committment from each of the partners.Funds provided by non-federal governments increases. However,the Administration's budget proposals for FY'89 do not offer convincing evidence to the non-federal partners, especially when they again propose to eliminate all cost-share programs of U.S.D.A.

I've attached three tables for your consideration.Table 1 has the funding level recommendations of SWCS for several USDA agencies and programs for soil and water conservation in the next Fiscal Year.Table 2 depicts the past decade of history of Soil Conservation Service funding comparing actual and constant dollars.Over $ 700 million would be need in FY'89, to provide SCS with capability comparable to a decade ago. Table 3 shows the funds appropriated by State and local governments for conservation programs in Fiscal Year 1988.

Should the Nation continue adequate funding for conservation? The *Second RCA Appraisal* showed that degradation of some of our land resources continues,that water demand and supply are not in balance,and that processes intensified by agricultural production do pose possible threats to enviromental quality and public health.Under current use and management,the productivity capacity of some agricultural land is not being maintained:

-About 1.5 million acres of agricultural land,most of them prime farmland,are irreversibly removed from production and converted to nonagricultural use each year.
-Sheet and rill erosion or wind erosion exceeds the tolerable level on more than 173 million acres of cropland.
-A total of 57 million acres of cropland and pastureland are affected by excess soluble salts or adsorbed sodium.

- Nearly 250 million acres of nonfederal rangeland are in less than good condition..
- Geographic areas,climates,and soils suited to *alternative farming systems* need to be evaluated so that a sustainable, low-input agriculture can be promoted.

Finally,Mr.Chairman when Congress enacted the Food Security Act of 1985 that included Title XII-Conservation,we began the next half-century of soil and water conservation with new reforms in the relationship between the U.S.D.A.farm programs and the Nation's farm,forest and ranch owners and operators. The implementation of this landmark legislation is well underway,with rules and regulations finally in place and education and information efforts widespread.This is not the place nor do we have the time to examine progress and problems related to the Conservation Reserve,Swampbuster,Sodbuster and/or the most demanding provision-Conservation Compliance.Both Senate and House Committees for Agriculture have recently had oversight hearings.Budgets for achieving the 45 million acre goal for CRP and the needed technical and cost-share assistance to meet the several requirements of that Act will be of concern. The SWCS,with thirty co-sponsors including USDA,had a meeting in November,in Kansas City,*American Agriculture at the Crossroads-A Conservation Assessment of the 1985 Food Security Act* and a"White Paper"from that session is available.I thank you.

U.S.Department of Agriculture
Agencies related to Soil and
Water Conservation Activities

Table 1

( In millions)

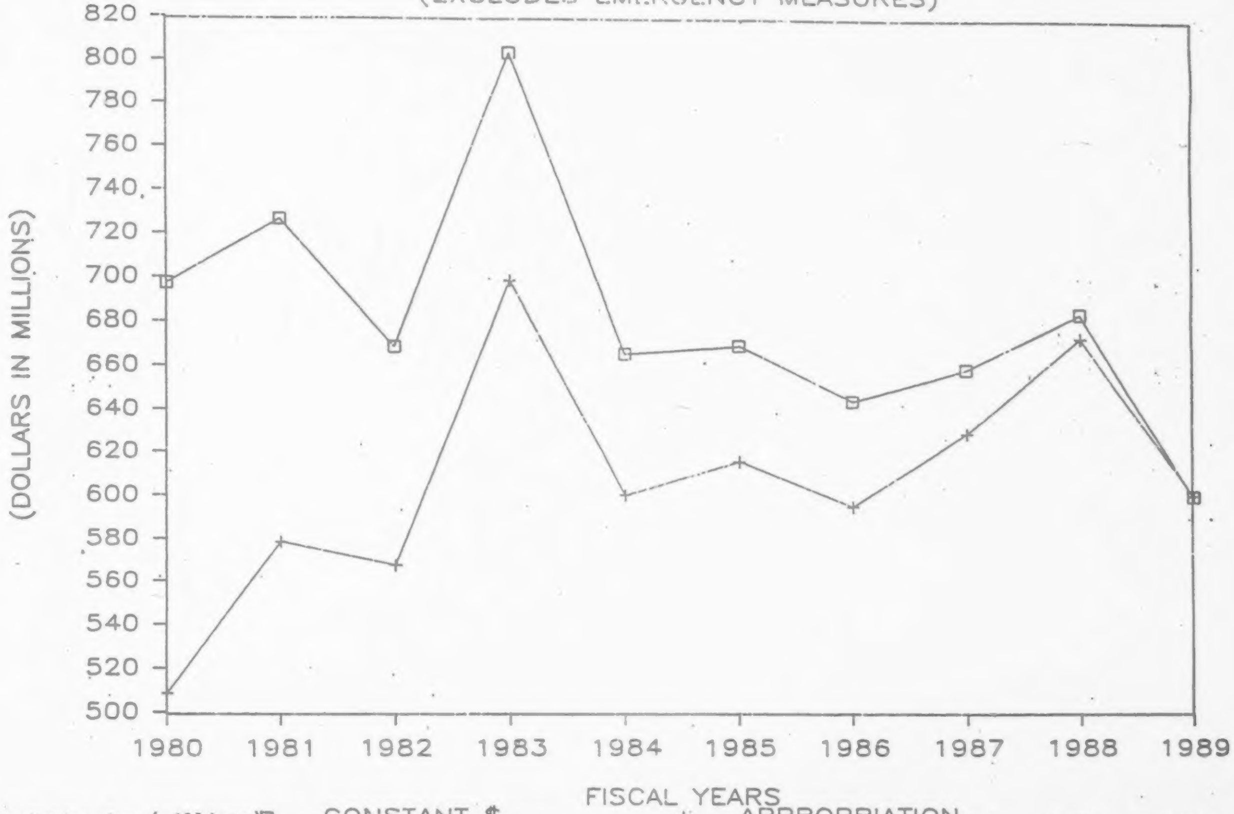
| Program | FY'88 Appropriation: | FY'89 President's Proposals: | FY'89 SWCS's Recommendations: |
|---|---|---|---|
| SCS: | | | |
| Conservation Operations | $443.9 | $455.2 | $475.0 |
| River Basins | 12.1 | 9.8 | 12.0 |
| Watershed Planning | 8.7 | 8.2 | 12.0 |
| Watershed Operations | 160.8 | 95.4 | 200.0 |
| RC&D's | 25.0 | 25.0 | 35.0 |
| Great Plains | 20.5 | 6.0 (T) | 22.0 |
| Total for SCS | $676.1 | $599.6 | $756.0 |
| Transfer Funds for SCS:RAMP | $15.0 | 0.0 | $20.0 |
| CCC/CRP | 45.2 | A percentage of CRP expenses | |
| | | (T)Termination expenses only | |
| ASCS: | | | |
| Conservation Reserve (CRP) | $1,131.0 | $1,864.0 | $2,200.0 |
| ACP | 176.9 | 0.0 | 200.0 |
| FIP | 11.9 | 0.0 | 13.0 |
| Water Bank | 8.4 | 0.0 | 10.0 |
| Colorado River Salinity | 4.9 | 0.0 | 5.0 |
| ARS: | | | |
| Soil & Water Cons.Research | $60.8 | $66.6 | $67.0 |
| CSRS: | | | |
| Hatch Act | $155.5 | $155.5 | $155.5 |
| McIntire-Stennis | 17.5 | 13.0 | 18.0 |
| Rangeland Research | .5 | 0.0 | 1.0 |
| Alternative(Low-Input)Agriculture* | 3.9 | 0.0 | 15.0 |
| *These funds also to be used for some Extension and Non-Profit Organization Activities | | | |
| Extension Service: | | | |
| General Formula | $241.6 | $228.5 | $242.0 |
| Earmarked Prog. | 73.8 | 68.2 | 74.0 |
| Renewable Resources Extension Act | 2.8 | 2.8 | 15.0 |

Funds for Farmer's Home Administration activities related to Watershed & RC&D loans in FY'89 should be the same as FY'88

Table 2

## ALL FUNDS

(EXCLUDES EMERGENCY MEASURES)



| Appropriation in: (millions) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Actual dollars | $508.1 | $578.2 | $567.0 | $698.3 | $599.9 | $615.4 | $594.6 | $628.2 | $672.6 | $599.7 |
| Constant dollars | $697.4 | $726.6 | $668.7 | $803.4 | $665.4 | $669.2 | $643.9 | $658.4 | $683.9 | $599.7 |

Table 3

## FUNDS APPROPRIATED BY STATE AND LOCAL GOVERNMENTS FOR CONSERVATION PROGRAMS FISCAL YEAR 1988

| STATE | STATE GOVERNMENT | LOCAL GOVERNMENT | TOTAL |
|---|---|---|---|
| Alaska | 165,760 | 11,450 | 177,210 |
| Alabama | 1,205,889 | 712,958 | 1,918,847 |
| Arkansas | 869,629 | 836,967 | 1,706,596 |
| Arizona | 1,393,500 | 13,061,184 | 14,454,684 |
| California | 4,113,000 | 1,536,000 | 5,649,000 |
| Colorado | 772,602 | 454,510 | 1,227,112 |
| Connecticut | 2,850,850 | 896,200 | 3,747,050 |
| Delaware | 3,453,400 | 654,480 | 4,107,880 |
| Florida | 6,427,625 | 1,959,675 | 8,387,300 |
| Georgia | 2,136,000 | 2,840,000 | 4,976,000 |
| Hawaii | 2,535,572 | 1,178,404 | 3,713,976 |
| Iowa | 11,057,172 | 1,083,351 | 12,140,523 |
| Idaho | 6,792,100 | 126,985 | 6,919,085 |
| Illinois | 11,976,247 | 4,646,036 | 16,622,283 |
| Indiana | 6,164,062 | 2,416,374 | 8,580,436 |
| Kansas | 3,765,102 | 4,368,621 | 8,133,723 |
| Kentucky | 5,189,600 | 2,062,200 | 7,251,800 |
| Louisiana | 3,519,000 | 210,000 | 3,729,000 |
| Massachusetts | 419,000 | 179,000 | 598,000 |
| Maryland | 7,007,202 | 2,111,828 | 9,119,030 |
| Maine | 274,020 | 447,051 | 721,071 |
| Michigan | 7,549,500 | 1,510,800 | 9,060,300 |
| Minnesota | 32,188,561 | 34,524,521 | 66,713,082 |
| Missouri | 20,149,952 | 242,290 | 20,392,242 |
| Mississippi | 322,103 | 3,220,404 | 3,542,507 |
| Montana | 1,761,000 | 1,065,000 | 2,826,000 |
| North Carolina | 8,377,642 | 9,380,170 | 17,757,812 |
| North Dakota | 697,398 | 1,326,200 | 2,023,598 |
| Nebraska | 4,131,053 | 22,042,268 | 26,173,321 |
| New Hampshire | 84,919 | 222,185 | 307,104 |
| New Jersey | 2,446,000 | 3,376,333 | 5,822,333 |
| New Mexico | 559,571 | 547,710 | 1,107,281 |
| Nevada | 13,001,400 | 749,492 | 13,750,892 |
| New York | 14,974,602 | 4,218,675 | 19,193,277 |
| Ohio | 5,967,471 | 4,134,032 | 10,101,503 |
| Oklahoma | 3,317,550 | 1,720,094 | 5,037,644 |
| Oregon | 376,811 | 1,120,331 | 1,497,142 |
| Pennsylvania | 743,000 | 115,000 | 858,000 |
| Puerto Rico | 3,923,433 | 790,874 | 4,714,307 |
| Rhode Island | 258,250 | 17,016 | 275,266 |
| South Carolina | 2,845,300 | 1,780,140 | 4,625,440 |
| South Dakota | 326,457 | 728,617 | 1,055,074 |
| Tennessee | 1,239,193 | 1,343,623 | 2,582,816 |
| Texas | 3,421,263 | 3,415,660 | 6,836,923 |
| Utah | 57,462,900 | 224,650 | 57,687,550 |
| Virginia | 7,164,018 | 3,513,500 | 10,677,518 |
| Vermont | 404,900 | 37,570 | 442,470 |
| Washington | 2,284,347 | 1,309,830 | 3,594,177 |
| Wisconsin | 6,261,214 | 4,720,883 | 10,982,097 |
| West Virginia | 1,252,321 | 2,100,791 | 3,353,112 |
| Wyoming | 604,500 | 236,500 | 841,000 |
| TOTAL | 286,183,961 | 151,528,433 | 437,712,394 |

## ASSOCIATION OF STATE FLOOD PLAIN MANAGERS

### STATEMENT OF LYNN SPRAGUE, CONSERVATION SPECIALIST, DELAWARE DEPARTMENT OF NATURAL RESOURCES

Senator BURDICK. Our next witness is Lynn Sprague, conservation specialist, Delaware Department of Natural Resources, Association of State Flood Plain Managers.

Welcome to the committee.

Mr. SPRAGUE. Thank you for this opportunity.

I am giving testimony for the Association of State Flood Plain Managers. There is a written testimony, if that can be entered into the record.

Senator BURDICK. It will be received in full.

Mr. SPRAGUE. I will just briefly describe that and then give some more information.

The State Association of Flood Plain Managers represent the implementors and the program people at the State and local level, trying to help municipalities, States, and local rural governments deal with some of the flood plain problems in the country. We are, basically, the frontline people.

Specifically, what this testimony is for is to give support for reinstating the Soil Conservation Service budget for river basin surveys and investigations to the fiscal 1988 level of $12-plus million.

Under the new budget plans, they would take this funding and possibly combine that into a water resource management protection allocation and that would be supported, as long as the function was remaining.

Basically, over 50 percent of the communities in the country are affected by flood plain areas. What we have found in our own State of Delaware is that there are a lot of Federal laws, including the FEMA regulations, things required by the Corps of Engineers and others, and basically the only Federal agency that is at the local level that can service things on a telephone call or a field visit, without a lot of scheduling and very quickly giving the service, is the Soil Conservation Service.

What we have found in the last 2 or 3 years, and rightfully so, is that the Soil Conservation Service has been directed toward dealing with priorities such as the serious erosion problems in the country, and some of the others.

What we are finding is that a lot of the budget items are being redirected here and there.

The Soil Conservation Service has an expertise for hydrology that basically cannot be replaced. How do we use that at the local level? Again, when a municipality or an urban center or even a small rural town has a flood plain problem or a flooding problem, we need to go to some place for an overall expertise in watersheds that often cross political boundaries, hydrologic units, and when it's too complicated for the towns to handle.

To give more of a specific example, in our own State we had two towns trying to deal with its programs, but for various reasons something like a town board completely resigned. In our third-largest city we had difficulty filling a position on the city council. And yet these people are faced all the time with knowing about FEMA regulations, about the Corps of Engineers, dealing with developers, and they are looking for expertise that isn't available unless they have large staffs.

We feel that the Soil Conservation Service component is important and should be maintained.

I would stand to take any questions.

Senator **Burdick**. In requesting that Congress reinstate funding for SCS river basin surveys and investigations at a level of $12 million, you explain that the cost benefit far outweighs the investment.

I am concerned. Do you think we are spending enough in this area? Only about $250,000 per State is available. How are other conservation programs helping with flood control?

Mr. **Sprague**. One of the things that has happened is that we have now seen a partnership among Federal agencies and local agencies, and for this river basin investigation and studies, a lot of times that is the frontline study which will definitely help with the new Clean Water Act amendments or EPA, and deal with things on a watershed basis, to keep the FEMA regulations updated.

I would say no, that is probably not enough, but in trying to keep to the budget cutbacks the association felt that the current level of funding would be a minimum request.

Senator **Burdick**. Thank you very much.

Mr. **Sprague**. Thank you.

[The statement follows:]

## STATEMENT OF LYNN SPRAGUE

The Association of State Floodplain Managers is the only national organization of state and local officials responsible for managing flood-prone areas. We represent the state and local agencies who work to reduce and prevent flood damages.

In an average year, floods kill 150 people and cost the country over $5 billion in property damages. Floods have been and continue to be a tremendous burden on the nation's taxpayers. The Federal Government alone spends over $1 billion each year in disaster assistance, subsidized flood insurance, and flood control projects. Fifty years experience with federal floodplain programs have shown that the best way to prevent and reduce flood losses and to minimize federal expenditures is to have effective state and local programs. This requires federal technical assistance.

There is an item in the FY'89 Soil Conservation Service Appropriations that deserves special attention because it is important to state and local efforts. It is an item with a relatively small federal expenditure, but it will result in very large federal savings through the prevention or reduction of damages and death due to floods throughout the nation.

**This paper provides background information on why we support:**
Reinstating the Soil Conservation Service Budget for River Basin Surveys and Investigations to the FY'88 level of $12.051 million.

Need: There are over 17,000 communities in the nation which are subject to flood damage. There are between 6 and 8 million structures located in the floodplain in the nation. Providing assistance, education, and guidance to the owners of those houses and other structures requires a vast network of federal and state officials, as well as local units of government. Many of these 17,000 local communities now regulate construction within their flood hazard areas so that new construction is properly guided and prevented from flooding. However, many of these communities, especially the small rural communities, have neither the full-time staffs nor local expertise to be able to properly guide new development nor to assist existing development in retrofitting or other steps to reduce their flood damages. It is difficult for a part-time non-paid local official to convince a large developer who might come into the community that certain things must be done and why they must be done to prevent future flood damage. That local community needs the assistance of state and federal agencies for both technical and programmatic help.

Assistance is currently provided to these local communities and to property owners by a few federal agencies and by a few state agencies. At the federal level, assistance is provided by the Soil Conservation Service, the Federal Emergency Management Agency, and the U.S. Army Corps of Engineers. Each of those agencies provides engineering and other technical assistance to the limits of their resources. The only one of those agencies that has a significant field operation with technical staff close to the communities and citizens is the Soil Conservation Service. They have the unique ability to be working with communities on a day-to-day basis, providing that assistance through the network of agents throughout the nation. To continue to provide that assistance will require continued funding resources which are supportive of that role.
Currently, the SCS responds to hundreds of requests for technical flood hazard assistance each year. The requests are from a large number of communities, with a bulk of them being in the rural areas where SCS is especially effective. Upstream flood loss reduction is a major priority of the Soil Conservation Service as requested by Congress. These funds are necessary in order to carry out that mandate.

The benefits of this kind of program greatly outweigh the costs. Fifteen minutes of technical advice to a property owner can result in measures that prevent thousands of dollars in flood damage. A day spent with a local official to develop better floodplain regulations or critique a flood evacuation plan can result in hundreds of thousands of dollars of flood protection. The more property owners and local officials are helped and encouraged, the less they will need federal disaster assistance or a federally funded flood control project.

The SCS is in a unique position with its broad based resource network to assist communities and citizens, particularly in rural areas where other federal agencies are almost never able to get to. State programs, while providing assistance wherever possible, cannot provide all the assistance necessary to reduce federal flood disaster costs. It is logical to have a federal assistance program which offsets and prevents those federal losses from flooding.

The SCS Floodplain Management Services are budgeted as a line item under the Water Resources - River Basin Surveys and Investigations. The types of services provided under this include the SCS Floodplain Management Studies which are used at the local level. Along with this effort for studies is the ability for the SCS to coordinate its flood hazard programs with other federal and state efforts. The proposed cut in these services from $12.051 million to $9.809 million would result in a direct cut of nearly 25% and a loss of 54 staff years to provide techincal assistance. In FY'86, this account was over $14 million. Communities are already adversely affected and floodplain development will worsen disaster costs unless Congress acts to restore the ability of SCS to respond. Such a cut will mean not helping a large percentage of the people and communities they are now able to help. We can only conclude that this will result in increased flood losses and increased federal disaster costs.

Recommendations: Because of the need for the SCS Floodplain Management Services and the relatively small cost to the Federal Budget compared to the benefits gained to the Federal Treasury, we strongly urge:

> That Congress approve reinstatement of the Water Resources - River Basin Surveys and Investigations funding for the Soil Conservation Service (U.S.D.A.) to $12.051 million.

## HEALTH INDUSTRY MANUFACTURERS ASSOCIATION

### STATEMENT OF FRANK E. SAMUEL, JR., PRESIDENT

Senator BURDICK. Our next witness is Frank E. Samuel, Jr., president of the Health Industry Manufacturers Association.

Welcome to the committee.

Mr. SAMUEL. Thank you, Mr. Chairman.

I am Frank Samuel, president of the association. I have a short statement which I would like to submit for the record and just a few comments to make this morning.

Senator BURDICK. It will be received in full.

Mr. SAMUEL. As you know from our past appearances here, our association represents companies that make all kinds of medical equipment, x-ray equipment, disposable supplies, implants, and so forth. Many small companies are represented in that membership and, therefore, for them, the problems of food and drug approval are extremely important for their continued well-being.

This is the third year we have appeared before the committee. In the past 2 years, 1987 and 1988, this committee has worked with the agency and the administration and finally approved additions to the budgets requested by the administration, and we applaud your work for that. It has made product approval times and FDA efficiency much more acceptable.

We also applaud your continued opposition to the issue of FDA user fees, proposals which have been made by, I think, the past two administration budgets, at least, which are fortunately missing from the current proposals.

In short, although it is a relatively modest part of the subcommittee's concern, the subcommittee is to be complimented for its support for the Food and Drug Administration and for both its current level of management and product approval times for both our industry and the American health care system.

This year the FDA request asks for an additional $1.1 million for the device evaluation process. This is a process that major new technologies must go through before they can be marketed legally. That $1.1 million request will fund 18 full-time equivalent employees for the Office of Device Evaluation at FDA. We do, obviously, support that request.

This year, unlike the past 2 years, we are not suggesting that the committee approve more than the administration's request.

We have two observations about that $1.1 million. First of all, the 18 FTE's that it represents are not additional manpower, will not yield additional manpower for the Office of Device Evaluation. It is, rather, a method of restoring formally to the Device Bureau the manpower that they have borrowed from other parts of the agency.

Second, while we note that both approval times and backlogs are much improved in that office, there is still much progress to be made. At the end of fiscal 1987 it took the Office of Device Evaluation approximately twice as long as their statutory limit to approve a new device.

So, we think, in spite of the progress that has been made at the agency, much more is possible. We are hopeful, although FDA has not released figures, we are hopeful that the progress on product approval times has continued during the first half of 1988.

The last thing I want to mention, Mr. Chairman, is the fact that the authorizing committees in both houses are presently considering some fairly significant changes to the Medical Device Amendments of 1976, which is the fundamental law that FDA administers in this area. None of that consideration has come to the point of reporting out legislation to the authorizing committee; therefore, it is premature for this committee to worry too much about exactly what the resource requirements are going to be.

I merely predict, however, that within the next year or so there will be authorizing legislation passed that will expand FDA's workload, which is another reason to keep the commitment to the Office of Device Evaluation and to the agency as strong as it is possible to keep it.

That concludes my informal comments, Mr. Chairman. If you have any questions, I would be glad to try to answer them.

Senator BURDICK. Thank you.

Ideally, if the statutory time of 6 months for product reviews could be achieved, how many additional FTE's, at what funding level, would be required?

Mr. **Samuel**. I think that is very hard to say, Mr. Chairman. I assume that since it takes 1,200 hours, person-hours, a year in order to consider a PMA, that we could do that arithmetic very easily for you, in an arithmetic sense.

The point is, however, I think, that it relates very much to the quality of the applications that are submitted by manufacturers and the nature of how well FDA is managed.

So I don't think we can just do an arithmetical extrapolation. However, arithmetically, if you were to do it, it would take approximately twice as many as the roughly 200 people that they have today.

I seriously doubt, however, whether that is necessary in order to get those product review times down to 6 months.

We found, for example, when we looked at the process a couple of years ago, that there were some very simple internal procedural steps that could be omitted that had nothing to do with reviewing the effectiveness data for the applications. Those steps were taken out, and the products approval times dropped I think by a couple of months, as a result of that and other changes.

So I think there is much to be said for the notion that it is not just manpower; it is proper management of manpower, and it is proper submission of applications by manufacturers. All three things together would get us down to the statutory deadline.

But I think if you were simply to do an extrapolation of the numbers, it probably would come out to be approximately twice the office's evaluations presently. I think it is just slightly over 200 people they have working for them.

Senator **Burdick**. It is my understanding that the Health Industry Manufacturers Association is involved in a coalition for upgrading and expanding building space for FDA scientists. In general, what is your major concern in this area?

Mr. **Samuel**. Our major concerns I think are two. One is simply the inability to manage properly an agency that is spread over several buildings and in the case of device evaluation, it is also. That is mirrored in where device evaluation is located. It is just very inefficient, extra time is taken, shipping documents from one fiscal location to another, from Silver Spring to Rockville, two or three different places in Rockville. It takes time, and it has nothing to do with the quality of the review; it has nothing to do with whether the safety data and the effectiveness data are being better surveyed.

Also I think there is a question of morale. An agency that is together in one place probably tends to have better morale than an agency that is trying to collect its thoughts and collect its people from various parts of the map. I think those are the two major reasons.

Right now I think the efficiency and the morale of the Device Bureau suffers from their being spread out all over Montgomery County and other places, besides.

Senator **Burdick**. Thank you very much.

Mr. **Samuel**. You are very welcome. Thank you, again.

[The statement follows:]

## STATEMENT OF FRANK E. SAMUEL, JR.

I am Frank E. Samuel Jr., President of the Health Industry Manufacturers Association (HIMA), the trade association of the medical device, diagnostic products and health information systems industry. There are over 300 members of our association whose companies account for over 90% of domestic sales of medical technology. Three-fourths of our member companies are smaller businesses which have revenues of less than $20 million per year.

This is the third year I have been privileged to appear before you and this distinguished subcommittee to testify about funding for the Food and Drug Administration (FDA). Today, I am here to support the FDA's request for $468.5 million for routine functions plus an additional $65 million for emergency AIDS related activities.

### Product Review Crisis at FDA

The FDA regulates virtually all products in our industry. Those products on the cutting edge of science, providing medical breakthroughs of far reaching proportions, must undergo an exhaustive review of safety and effectiveness called a premarket approval. Three years ago, there were substantial backlogs in all categories of FDA review activities, and premarket approval applications were taking on average 13 months to be approved. The statutory timeframe mandated by Congress is 6 months.

### HIMA Response

In the face of what we viewed as a pending crisis at the agency, HIMA took what was probably an unusual action for a highly regulated industry.

We adopted a two-track approach to helping FDA get its job done. First, we established a Board level committee comprised of some of the most talented and productive chief executive officers in the country, headed by Dan Gill of Bausch & Lomb. They came up with a set of recommendations to improve management efficiencies both within FDA and HIMA companies to eliminate outmoded and non-productive procedures and to assure that companies submitted high quality applications to the Agency.

Second, we came to you, as well as the appropriate subcommittee in the other body, to ask for additional funding to help FDA cope with a growing and ever more complex workload.

### Request for Additional Funding for FY 87 & FY 88

When you were considering FDA's budget for FY 1987 and 1988, I testified before this committee and asked for increased funding for FDA since we believed that the amount of money requested by the Administration was inadequate. Furthermore, the Administration's reliance on establishing an ill-conceived user fee program was a totally inappropriate plan to fund FDA's work in product approvals. Your committee and the Congress agreed with us, and for the past two fiscal years have provided additional funding to improve the product review process and prohibited user fees.

### Progress at FDA

We appreciate your support and help in this area very much. Some progress has been made. At the end of FY 1987, the large backlog of applications had been eliminated and average review times in all categories of product review had been reduced, some significantly; others slightly.

Since the beginning of FY 1987, approximately thirty additional full time staff positions have been devoted to product review, reflecting the additional resources you made available. This Committee deserves great credit for and can take great satisfaction from the improvements in public health that have resulted from its support for FDA product reviews.

## HIMA supports Administration Request for FY 89

This year, the Administration has not made a request for user fees and has requested an appropriation which includes an additional $1.1 million and 18 full time equivalents (FTEs) to enhance review of new device applications. HIMA supports this request and is not this year requesting any additional funding, but we do so with a couple of words of caution.

### With reservations

First, it is our understanding that the 18 FTEs will not add reviewers to the existing personnel levels. They are essentially paybacks for personnel which the Agency shifted from other areas to help eliminate the backlog in applications.

Second, by FDA's own estimates, this additional funding request will enable the agency to continue to process applications in the current time frames, but will not result in any further decreases in average product review times. They estimate that premarket approval applications will still take an average of 11 months for FY 1989. This is still almost twice as long as the statutory period by which applications must be approved. **We still find that unacceptable.** We hope that FDA's estimates are conservative and more progress will be made as the new FDA review staff become better trained and more efficient in product review. The Office of Device Evaluation has not officially published its mid-year report, so we await with great interest a report about yet whether FDA has been able to maintain its zero backlog or bring down approval times further.

## Opposition to User Fees

Third, we ask that the Committee remain steadfast in its opposition to the imposition of user fees on product review applications by the FDA. The Administration has backed away from this proposal at least temporarily, but we are concerned that, unless this Committee continues to legislate a specific prohibition against user fees, this issue will surface again.

## Support for AIDS Funding

Our industry is also mindful of the important work that FDA is doing to help combat the AIDS epidemic, and we fully support their request for $65 million. HIMA is working closely and cooperatively with FDA on a variety of AIDS related issues including issues relating to condoms and gloves, returned goods, and hospital personnel safety. We hope that this committee will see fit to fund the full amount of FDA's request for its AIDS work.

## Potential Resource Need

In closing, I would like to bring to the attention of the committee a potential resource need which FDA may have in the near future. Legislation has been introduced which would amend the Medical Device Amendments of 1976, the legislation which provides for the regulation of the medical device industry. Although parts of the bill may eventually enable FDA to shift and conserve some resources, there are several provisions which could have a significant impact on FDA resources. Estimates vary about the actual resources required to implement these provisions, but there is no doubt that it would be a substantial addition to FDA's already heavy workload.

The legislation has not passed the House or the Senate yet, so obviously there is no fixed basis for this subcommittee to make resource judgments. That would be premature. But, I believe that we can expect some legislation to be enacted in the next year or so. We are concerned that this legislation could have serious repercussions on the product review process. We urge you to keep in touch with the authorizing committees to assure that appropriations are consistent with new responsibilities.

Thank you again for your assistance in the past and for your interest in the medical technology industry and the Food and Drug Administration.

## NATIONAL ORGANIZATION FOR RARE DISORDERS

### STATEMENT OF DESIREE DODSON, BOARD MEMBER

Senator BURDICK. The next witness is Abbey Meyers, board member, National Organization for Rare Disorders, also known as NORD.

Welcome to the committee.

Ms. DODSON. I am Desiree Dodson, and I will be speaking for Abbey.

Ms. DODSON. Mr. Chairman and members of the committee, I am pleased to report about the success of the FDA's Orphan Drug Grant Program and to tell you about the fiscal year 1989 appropriations that are needed to support these vital medical efforts.

I am Desiree Dodson, speaking on behalf of the National Organization for Rare Diseases, which is a national nonprofit voluntary agency composed of individuals with orphan diseases and approximately 100 national voluntary agencies concerned with specific rare disorders.

I am also a founder of the American Porphyria Foundation. Porphyria is one of approximately 5,000 rare diseases, and I have this illness.

Each orphan disease affects small numbers of people. Therefore, the pharmaceutical industry did not develop therapies to treat these illnesses, because they were unprofitable, until the Orphan Drug Act became law in 1983.

The Orphan Drug Act has created incentives to entice the pharmaceutical industry into developing drugs of little commercial value.

Today in the United States, 190 orphan drugs have been designated by the FDA, and approximately 150 of these diseases were virtually hopeless in 1983. They are now treatable as a result of this law.

Many lives have been saved, and much pain has been alleviated because Congress recognized the orphan drug dilemma and responded appropriately.

My life has been saved two times by orphan drugs, one of which was developed with the funding you appropriated through the FDA's Orphan Drug Grant Program.

Porphyria is a rare, life-threatening genetic disorder that causes excruciating, unbearable pain and paralysis. These attacks caused me to be hospitalized 100 times, 30 of which I spent in intensive care. I was totally paralyzed twice. My family and my physicians had no expectation for my survival until the drug Hematin became available.

Hematin was the first orphan drug approved by the FDA. Despite my prognosis, Hematin kept me alive through recurrent attacks. Today a new treatment, an LHRH analog funded by the Orphan Drug Grant Program has been developed.

My restored health is due to these two orphan drugs which would not have been possible without your appropriations.

Foremost, as a mother, because of your compassion, I can say that my child will be spared the agony of suffering from this devastating and crippling attack, porphyria.

The original Orphan Drug Act authorized $4 million annually for FDA's Orphan Drug Grant Program. These grants are awarded to academic scientists conducting clinical trials on drugs which usually have no commercial sponsors. When sufficient evidence is collected to indicate that the drug is safe and effective, the pharmaceutical industry steps in to make the drug available to the public.

Despite the intense need for these funds, it took 4 full years for the $4 million to be appropriated. A few weeks ago the Orphan Drug Act was reauthorized by Congress, and the ceiling for grants has been raised to $12 million in 1989.

We can honestly tell you that this most modest increase in funds is desperately needed, because FDA is able to fund only about 20 new grants annually with $4 million.

Until now, approximately 75 percent of new grant applications have not been funded each year, and research on too many life-threatening therapies is being postponed unnecessarily.

Plainly, people are dying in the absence of adequate funding.

By way of comparison, the Federal Government is spending $1.3 billion this year on one disease, AIDS. And we are grateful for that. Of that, $325 million will be spent on development and evaluation of drugs and vaccines for AIDS, as it certainly should be.

However, when you consider that the FDA Orphan Drug Grant Program appropriation of $12 million is meant to address more than 5,000 diseases affecting 20 million people, you can see that this request is a drop in the bucket.

Additionally, AIDS is one of the few orphan diseases that has elicited commercial interest; whereas, the remainder of rare diseases like porphyria do not entice manufacturers with the promise of eventual large markets.

Additionally, we are concerned that the administration's 1989 request for FDA's overall budget is 2 percent less than last year and, in particular, their budget for drug approval programs is 10 percent less.

The agency is under intense pressure to expedite the number of new drugs approved for marketing each year, but they will apparently have 10 percent less funding to do the job than they had in 1988.

I hesitate to think what would have happened to me if the approval of Hematin had been delayed due to budget cuts.

We hope that you will not approve the administration's proposed reduction in the FDA budget, because last year a record 21 new drugs were approved, 8 of which were orphan drugs. We would deeply regret any loss of momentum due to budget reductions at the FDA that might slow the new drug-approval process.

The lives of people with porphyria, Lou Gehrig's disease, narcolepsy, multiple sclerosis, neurofibromatosis and many more devastating illnesses rely on the compassionate response of this committee.

We request that you appropriate the full $12 million for FDA's Orphan Drug Grant Program in 1989. We cannot attract academic scientists to the orphan drug field without sufficient dollars to support their research. Too many lives have already been lost because this program has been a low priority in the overall financial picture of the Government budget.

We ask you to reverse this trend and give people with rare diseases the dignity and hope they deserve. Few other Federal programs have spent their money more wisely and effectively than the FDA's Orphan Drug Grant Program.

Thank you.

Senator BURDICK. Thank you.

During the past year, FDA has issued regulations and launched a major effort toward approval of investigational new drugs in life-threatening cases. Are you aware of any drugs for treatment of rare diseases that have sought investigational new drug approval?

Ms. DODSON. Certainly. Are you saying am I aware of any?

Senator BURDICK. Yes.

Ms. DODSON. I certainly am. The LHRH Analogue that I am on, in fact as I testified here last year I just had been off of that treatment for 4 months, now I have been off 1 year and 6 months.

And the fact is there is a drug called Erythropoietin that we contacted the president of Amgen about this past week, whose company is now trying to get FDA approval, because this is the last chance this woman has. They have tried everything else, and now there is this orphan drug Erythropoietin that may be able to become available.

As I spoke in my testimony, 150 treatments have been developed that have changed people's lives from no hope to life.

Senator BURDICK. The Congress and, in particular, this committee are both aware of the progress in the drug review process that has been taking place. They are hopeful that more improvement can be made.

In what other areas besides drug approvals can Congress work to assure that treatment for orphan diseases is available? In what other areas besides drug approvals?

Ms. DODSON. What other area besides drug approval? I can speak as an executive director of a foundation for a rare disease.

The foundations for these diseases have tremendous difficulty in getting appropriations from any source, because they are, obviously, not affecting a great number of people separately—20 million people as a whole.

These agencies enhance education and awareness of the medical community for rare diseases. It is very difficult to diagnose them, to treat them, et cetera. So anything, any appropriation, that would help enhance education and awareness of any rare disease is going to be responsible for the first and foremost difficulty, which is getting diagnosed properly.

Certainly any efforts for appropriations for any researchers, whether it be for drug therapy or nutrition research, any sort of research, is going to be beneficial.

Senator **Burdick**. Thank you very much.

Ms. **Dodson**. You are welcome.

[The statement follows:]

## STATEMENT OF ABBEY S. MEYERS

Mr. Chairman, members of the Committee, we are pleased to report about the success of the FDA's Orphan Drug Grant Program and tell you about FY 1989 appropriations that are needed to support these vital medical efforts.

I am Abbey Meyers, Executive Director of the National Organization for Rare Disorders (NORD), which is a national non-profit voluntary agency composed of individuals with orphan diseases, scientific researchers, compassionate members of the public and approximately 100 national voluntary health agencies and support groups concerned about specific rare disorders.

NORD is the voice of an estimated 20 million Americans who are afflicted by approximately 5,000 rare, chronic or life-threatening illnesses. Each orphan disease affects small numbers of people. Therefore, the pharmaceutical industry did not develop therapies to treat these illnesses because they were unprofitable, until the Orphan Drug Act became law in 1983.

As you know, the Orphan Drug Act created incentives to entice the pharmaceutical industry into developing "drugs of little commercial value." The Act has been an unprecedented success, and a model for the rest of the world. Indeed, the Common Market is planning to replicate the law in its 1992 Unified Economic Act. Today, in the United States, 190 orphan drugs have been designated by the FDA and approximately 150 diseases that were virtually hopeless in 1983 are now treatable as a result of this law. Many lives have been saved, and much pain has been alleviated because Congress recognized the orphan drug dilemma, it responded appropriately, and the American pharmaceutical industry has met the challenge admirably. Still, in many cases, specific orphan drugs are not adopted by a commercial sponsor until clinical evidence, supported by FDA research funding, is available to indicate that the drug should be developed.

The original Orphan Drug Act authorized $4 million annually for FDA's Orphan Drug Grant Program. These grants are awarded to academic scientists conducting clinical trials on drugs which usually have no commercial sponsors. When sufficient evidence is collected to indicate that the drug is safe and effective, the pharmaceutical industry steps in to make the drug available to the public.

Despite the intense need for these funds, it took four years for the full $4 million to be appropriated. A few weeks ago the Orphan Drug Act was reauthorized by Congress and the ceiling for grants has been raised to $12 million in FY 89 and $14 million in 1990. We can honestly tell you that this modest increase in funds is desperately needed because FDA is able to fund only about 20 new grants annually with only $4 million, and the new Orphan Drug Act adds orphan devices and medical foods to the FDA's research responsibilities. Until now approximately 75% of new grant applications have not been funded each year, and research on too many life-saving therapies is being postponed unnecessarily. Plainly, people are dying in the absence of adequate funding.

By way of comparison, the Federal government is spending $1.3 billion this year on just one disease: AIDS. Of that sum, $325 million will be spent on development and evaluation of drugs and vaccines for AIDS, as it certainly should be. However, when one considers that an FDA orphan drug grant appropriation of $12 million for FY 89 is meant to address more than 5,000 diseases, you can clearly see that this request is a "drop in the bucket." It is insignificant in comparison to the vastness of the problem, and certainly an insignificant percentage of the Federal budget. Additionally, AIDS is one of the few orphan diseases that has elicited commercial interest, whereas the remainder of rare diseases do not entice manufacturers with the promise of eventual large markets.

Additionally, we are very concerned that the Administration's FY 89 request for FDA's overall budget is 2% less than last year, and in particular, their budget for drug approval programs is 10% less than last year. The agency is under intense pressure to expedite the number of new drugs approved for marketing each year, but they will apparently have 10% less funding to do the job than they had during FY 88.

We hope that you will not approve the Administration's proposed reduction in the FDA drug budget because last year a record (21) twenty-one new drugs were approved by the FDA; (8) eight of which were orphan drugs. This means 38% of new chemical entities approved last year were orphan drugs. We would deeply regret any loss of momentum due to budget reductions at the FDA that might slow the new drug approval process.

Mr. Chairman, the lives of people with Lou Gehrig's disease, narcolepsy, multiple sclerosis, and many more familiar and devastating diseases rely upon the compassionate response of this committee. We request that you appropriate the full $12 million for FDA's Orphan Drug Grant Program in FY 89. We cannot attract academic scientists to the orphan drug field without sufficient dollars to support their research. Too many lives have been lost already because this program has been a low priority in the overall financial picture of government budgets. We ask you to reverse this trend and give people with rare diseases the dignity and hope they deserve. Few other federal programs have spent their funds more wisely and effectively than the FDA Orphan Drug Grant program.

## NATIONAL RURAL TELECOM ASSOCIATION

### STATEMENT OF JOHN F. O'NEAL, GENERAL COUNSEL

Senator **BURDICK**. Our next witness is John F. O'Neal, general counsel, National Rural Telecom Association.

Mr. **O'NEAL**. Thank you, Mr. Chairman.

I appreciate the opportunity again this year to present the views of the National Rural Telecom Association, which represents commercial telephone companies which borrow their capital requirements from REA, the Rural Electrification Administration.

I would like, with your permission, Mr. Chairman, just to summarize my written testimony and highlight some major points for the subcommittee record.

As you have so ably pointed out in earlier hearings when Secretary Lyng and also REA Administrator Harold Hunter appeared before this committee, the administration is attempting yet again this year to devastate and destroy the REA program.

Elimination of the insured and 100-percent guaranteed loans and restrictions on borrower eligibility are completely unwarranted and we believe are unsound, particularly in view of the current state of the rural economy.

Our interest rates, Mr. Chairman, as you well know, just mean higher telephone bills for rural America. These proposals on the bottom line represent merely philosophical opposition to the REA Program and not genuine deficit reduction.

For this reason, we oppose these proposals, as well as those to repeal many of the Rural Telephone Bank Reforms which were adopted just last year by the Congress.

At the same time, we fully support this Congress' efforts to get the massive Federal deficit under control. And accordingly, we are again asking this year for a freeze on loan levels for each of the telephone loan programs—insured, guaranteed, and for the Rural Telephone Bank.

We are also seeking continued capitalization for the Rural Telephone Bank in the amount of $28.7 million. The bank, as you know, is in its 17th year of a 20-year authorized capitalization period, and each annual increment of this capital is vital to the bank's overall permanent capital structure.

Mr. Chairman, telephone borrowers have drawn down about $300 million in high-rate Federal Financing Bank loans which have been guaranteed by the REA. Despite congressional attempts on a repeated basis over the past few years to authorize prepayments of these loans without penalty, no telephone loans have been prepaid to date.

We appreciate this committee's efforts last year in providing $2.5 billion in the appropriations act in the continuing resolution. That was $500 million more than the amount provided in the reconciliation act. Unfortunately, REA has not implemented your provision, which contained no fiscal year limitation; they chose only to implement the reconciliation legislation amount for fiscal 1988.

We believe that REA should permit this additional amount of prepayments, as directed under existing law by this committee.

In addition, we request that the committee consider authorizing additional amounts for fiscal 1989.

These prepayments represent an immediate source of revenue for the Government during these troubled budgetary times, and they also lower the cost of providing rural electric and telephone service. In a very simple way, they make very good sense.

We also ask that future prepayments which might be authorized by this committee separate the amounts designated for the electric and telephone programs.

The potential amount of electric program prepayments and the size of individual electric loans far exceed those amounts in the telephone program. As I have testified, we only have about $300 million total in the telephone program, which has been advanced at high rates. We believe that separate amounts would provide a fair, equitable, and orderly treatment of borrowers in both programs.

We request that the committee again extend the prohibition against reinstatement by REA of the restrictions on general funds in the telephone program. Reinstatement of that policy would again jeopardize successful operation of the REA telephone program.

I want to thank you again for the opportunity to present the views of our association and for the support of this committee over the years for the REA Program. It is a time-tested Federal loan program that works, and it is needed today more than ever before in its history.

We appreciate your support, Mr. Chairman.

Senator BURDICK. Thank you.

Mr. O'Neal, one of the premises upon which you base your budget request for REA is that, without targeted credit assistance to rural areas, some rates would double or even triple in the near future.

How do rural telephone and electric rates currently compare to their urban counterparts, on an average?

Mr. O'NEAL. On an average, the telephone rates are substantially higher than the urban counterparts. And of course, one thing that you have to consider when you are comparing telephone rates, Mr. Chairman, is the fact that in urban areas the size of the calling area for the amount of the monthly rate is substantially larger than it is in a rural area.

For instance, let us say, just to take an example, that the residential telephone rate in New York City is $8 a month. For that amount of money you can call 10 to 12 million telephones in that area. Contrast that with rural areas where rates might be $15 or $20 a month; the calling area is substantially less than that, sometimes even only 400 to 500 telephones.

Senator BURDICK. How is REA assisting rural telephone borrowers in the writing of services, based on state-of-the-art technology?

Mr. O'NEAL. Well, there is some question about that, Mr. Chairman. The REA in the past has made telephone loans for not only rural radio telephone service, which is an improved technological service, but also for cellular radio. Unfortunately, in this administration the Administrator has chosen not to make those loans, or at least we don't see any loans for cellular radio being approved, despite the fact that this is an advancement in technology, and an important one, and it should be available in rural America. We believe that it is authorized under the act, and loans should be made for that purpose, as well.

We believe that, as a matter of general principle, rural people are entitled to the same quality of telephone service as their urban counterparts, and we have urged that at REA and before the Congress, that position, and we intend to continue to do that.

Senator BURDICK. Do any of your members have party lines?

Mr. O'NEAL. Yes, sir; they certainly do. Although, since the act was enacted in 1949, multiple party lines have diminished each year with the improvement of telephone service from these loans. But there is still a job to do in that area, as well.

Senator BURDICK. How much more prepayment authorization for fiscal 1989 do you propose?

Mr. O'NEAL. $300 million on the telephone side, sir, and that is based on figures from REA which indicate that there are about $300 million in telephone loans that have been made by the Federal Financing Bank and guaranteed by REA which are at 8.5 percent or over.

On the electric side, I believe that there are somewhere in the neighborhood of $5 billion in demand, total demand, for refinancing of those high-rate loans.

Senator BURDICK. Thank you very much.

Mr. O'NEAL. Thank you, sir, for your attention.

[The statement follows:]

## STATEMENT OF JOHN F. O'NEAL

My name is John F. O'Neal. I am General Counsel of the National Rural Telecom Association. Our association is comprised of commercial telephone companies who borrow their capital needs from the Rural Electrification Administration to extend and modernize telephone service in rural areas. Approximately 1000, or 71% of the nation's telephone companies borrow from REA. They serve almost 5 million subscribers in 46 states. In accepting these loan funds, borrowers assume an obligation under the Act to serve the widest practical number of rural users within the service area.

Mr. Chairman, continuation of a strong REA program is very important to rural America. It is imperative that this vital program not be jeopardized by philosophical opposition or by unrealistic assessments of program needs. This Committee and the Congress as a whole has strongly supported the REA telephone program since its inception in 1949. We appreciate your past efforts and look forward to an even stronger REA program for the future.

### Ongoing Need for the REA Telephone Loan Programs.

Because of ongoing budget constraints, our association is recommending again this year that loan levels be frozen at last year's levels. These are the ranges your Committee approved for FY 1988:

| | |
|---|---|
| REA Insured Loans | $239.3 - 311.0 Million |
| Rural Telephone Bank Loans | $177.0 - 210.6 Million |
| REA Loan Guarantees | $119.6 - 138.8 Million |

As in the past, we want to reiterate our willingness to accept reductions in program levels if the Committee believes that is necessary to achieve its overall budget objectives. However, we believe that reductions in the REA program should be generally proportionate to reductions in other federal programs and not designed merely to accomplish ideological or philosophical purposes as has been suggested by the administration.

### Administration's FY 1989 Proposals

Proposals contained in the President's budget again this year would severely curtail and phase out the REA program as we know it. For FY 1989, the administration proposes to eliminate insured and 100 percent guaranteed loans in their entirety and partially substitute 70 percent guarantees of private sector loans in the amount of $100 million for both programs. In addition, the administration seeks to accelerate privatization of the Rural Telephone Bank and repeal many of the bank reforms adopted just last year by the congress. Those borrowers which are subsidiaries of holding companies and those deemed to be serving "urban, suburban and recreation areas" have again been targeted for elimination from the REA telephone loan programs. If adopted, these proposals would result in a complete devastation of the REA program. Mr. Chairman, there still have been no studies conducted which would support such radical proposals. No one knows for certain what the full impact or effects would be. But, one thing is certain:

rural telephone rates would increase further and service levels would surely deteriorate. For these reasons, we oppose them.

As of October 1, 1987, there were $275.5 million in pending loan applications from 64 borrowers. I know the Committee will agree that these figures, furnished by REA, amply demonstrate the ongoing need for this important program.

## Lack of Availability of Private Credit

Critics of REA argue that the need for the program is over because borrowers have the ability to borrow from private sources. But let us examine that. Private market lenders normally require 40 to 60 precent equities before they will extend credit. Based upon the latest available REA statistics, the average telephone borrower at the end of 1986 had a net equity of only 31.4 percent. Private lenders also require a one and one-half times interest coverage ratio test and prefer a ratio of 2 or higher. Most borrowers cannot meet the minimum test much less the preferred one. Also, it is important to note that most REA borrowers in relation to other telephone companies are very small and the territory they serve is extremely sparse. They serve over 1 million square miles or 34.5% of the territory but less than 5% of the telephones. The median borrower has only 2,100 subscribers. Borrower density is about 4 access lines per square mile. In contrast, the regional Bell operating companies average over 80.

## Rural Telephone Bank

In 1981, Congress authorized the additional government purchase of $300 million of Class A stock from the Rural Telephone Bank in the amount of $30 million per year for 10 years. Again this year the President's budget contains no request for this funding.

Congress originally established the Rural Telephone Bank in 1971. Its purpose is to provide a supplemental source of financing for REA telephone borrowers which can meet the statute's eligibility test and pay higher rates of interest, thus relieving pressure on the insured loan program. Each annual increment of capital is vital to the full capitalization of the Bank, enabling more and more insured program borrowers to utilize bank financing fulfilling Congress' objectives. This Committee and the Congress as a whole has recognized the essential nature of this ongoing additional capitalization process by providing funding for each of the first seven fiscal years, 1982-1988.

The purpose for government purchase of Class A stock in the bank is to attain a lending rate somewhere between the insured lending rate and the long term, comparable Treasury rate. The infusion of the Class A stock each year permits the bank effectively to achieve this rate, enabling more borrowers to be weaned away from the five percent statutory insured rate.

The Rural Telephone Bank is the cornerstone of financing for REA telephone borrowers for the future and hopefully, will be the institution which will ultimately provide all of the debt capital needs for rural telephone systems. Fulfillment of the Bank's capital structure is a vital factor in this process. Therefore, we respectfully request that the

Committee continue the appropriation of $28.7 million next year for government purchase of Class A stock in the Rural Telephone Bank.

Prepayment of Federal Financing Bank Loans

Telephone borrowers have about $300 million in Federal Financing Bank loans guaranteed by REA at rates of interest of 8.5 percent or higher. Despite repeated congressional attempts to authorize prepayment of these loans without penalty, no telephone loan prepayments have been permitted to date.

We appreciate the efforts of this Committee last year in providing authorizations of up to $2.5 billion in such refinancing (section 633, P.L. 100-202). Section 1401 of the Omnibus Budget Reconciliation Act of 1987, enacted subsequently, specifically authorized up to $2 billion of such prepayments during FY 1988. REA adopted an interim rule on January 27, 1988 (53 Federal Register 2468) implementing the latter authority and has permitted certain electric cooperative borrowers which were given a statutory priority to prepay $2 billion fulfilling the prepayment program authorized in hte reconciliation act for this fiscal year.

However, the interim rule completely ignores the prepayment authority contained in section 633 of last year's agriculture appropriations act which provides an additional $500 million in prepayment authority without fiscal year limitation. The agency is required to implement the additional authority and we hope the committee will insist that REA permit these additional prepayments (which are authorized under existing law).

In addition, we request that the committee give consideration in this year's appropriations act to providing additional prepayment authority for FY 1989 for both electric and telephone borrowers. We also request that consideration be given to authorizing separate amounts for electric borrowers and for telephone borrowers so that the $300 million in high interest rate guaranteed telephone loans may be prepaid without unduly interfering with additional prepayments which may be authorized for electric system borrowers.

Conclusion

Mr. Chairman, the REA program continues to face its greatest challenges. However, it withstands these annual assaults because it is a sound federal program that has been tested and works. And, it is needed today more than ever before. Rapid technological change and federal policies of competition and deregulation in the telephone industry underscore the need for targeted assistance to rural areas. Rate pressures in rural areas are already burdensome with predictions that some rates will double or even triple in the foreseeable future. Without the credit assistance provided by REA, even greater pressure would exist for rate increases.

Also, many fail to recognize that without the REA program the quality of telephone service in rural areas would also deteriorate. That is certain because the REA Act imposes a higher standard of service on borrowers than would otherwise be required. In the old days, if carriers provided service at all in rural areas it was only down the main roads because service on any other basis was not economically feasible. Today, thanks to the congress and the REA legislation, telephone service is provided to the "widest practicable number of rural users" in each borrower's service area -- a mandate that REA strictly enforces.

Thanks to the efforts of this Committee a substantial impediment to loan advances and approvals has been eliminated -- REA's general funds restrictions. We hope and recommend that the Committee continue to extend the general funds prohibition in the FY 1989 bill. Otherwise, the successful operation of the REA telephone program would again be jeopardized.

Thank you again for the opportunity to present our views concerning this vital program which is as worthy and necessary today as it was when enacted in 1949.

## Center for Science in the Public Interest

### STATEMENT OF MITCHELL ZELLER, ASSISTANT DIRECTOR FOR LEGAL AFFAIRS

### ACCOMPANIED BY CHARLES MITCHELL, STAFF ATTORNEY

Senator **Burdick**. Next is Mitchell Zeller, assistant director for legal affairs, Center for Science in the Public Interest.

Mr. **Zeller**. Thank you, Mr. Chairman.

My name is Mitch Zeller. I am the assistant director for legal affairs with the Center for Science in the Public Interest, and with me today is our able staff attorney, Charles Mitchell.

First, we would like to thank this committee for the very great leadership that it has provided in expressing budgetary concerns to the Food and Drug Administration in the area of food safety and nutrition. We very much appreciate the actions that you have taken on behalf of health-conscious consumers in years past.

I would like to talk about three issues today.

The first is sulfites, an issue that this committee has dealt with for some years now. Sulfites are the only food additive in the food supply today that can kill you on the spot.

The hazards of sulfites were first brought to FDA's attention in 1982, and it is kind of pathetic that we are still talking about sulfites today in 1988.

The deadline that you set for FDA action on all remaining uses of sulfites in the report last year has not been met.

Senator **Burdick**. Would you mind suspending for a few minutes for a very brief recess?

Mr. **Zeller**. Certainly.

[A brief recess was taken.]

Senator **Burdick**. You may proceed.

Mr. **Zeller**. Thank you.

In fact, the original deadline for action on sulfites, June 1, 1986, still has not been met. The only action that FDA took the last year is completely inadequate, a faulty proposal restricting certain uses of sulfites on potatoes. But with at least four deaths and close to 100 life-threatening reactions confirmed by FDA to a variety of potato products, including fresh and canned and frozen and dehydrated, FDA's proposal to remove sulfites only from fresh potatoes falls far short of protecting consumers.

We again recommend bill language keeping FDA to a deadline for action on sulfites, this time by the end of calendar year 1988.

The second issue of concern, and something that you touched on when Commissioner Young testified last week, is the urethane problem, a contaminant in wines and liquors that may cause cancer even in moderate drinkers. FDA just is not protecting consumers from this hazard.

More than 2 years ago Canada set limits on urethane and removed the highly contaminated products from store shelves, and FDA has refused to take even these much needed regulatory actions.

In the last year, all FDA has done is to accept weak voluntary agreements with the wine and distilled spirits industries, and the agreements are just not adequate. They are procedurally flawed, because FDA has given away its enforcement discretion without giving the public an opportunity to comment on that decision, and the agreements are substantively flawed because they are unenforceable and contain no sanctions.

One of the major problems is that all tainted products already on the market undergoing aging or in storage will be sold with urethane in them. Safer products will not become available until the late 1990's.

When you asked Commissioner Young about this last week, he claimed that the agreements had the lowest attainable levels possible. But for the record, I would like to state that one-quarter of table wines tested by the Federal Government detected no urethane whatsoever; and, in fact, the average for all products tested was below the average set in the agreements for 1988. In fact, more than 80 percent of the wines tested already meet the levels set in the agreements for 1995.

So we think that FDA should take out the most highly contaminated products to protect consumers. And until they do that, they should publicize the urethane levels in brand name products to give consumers a choice, and they also must set legally enforceable limits to protect people from this hazard.

We ask that these actions be required out of fiscal year 1989 funds.

The third issue I want to touch on is food labeling. Doctors for many years have advised consumers how to modify their diets to reduce their risks of diet-related diseases—heart disease, cancer, and the like.

Consumers are aware of this advice and are trying to follow it, but are confused by deceptive labeling claims and incomplete disclosures on food labels.

Unfortunately, FDA does not consider food labeling to be a priority. Commissioner Young has stated that no one has ever died from a food label, and that labeling is the least effective means of informing consumers.

We think that the very recent report by the National Academy of Sciences entitled "Designing Foods" proves the Commissioner wrong.

The report—and this was a report funded by the Department of Agriculture—urges major reforms in Federal food-labeling policies, such things as greater disclosure of saturated fat and cholesterol contents, restrictions on potentially misleading terms like "lite" and "lean" and "low fat" in an effort to tell the public that palm and coconut oil are major sources of saturated fat.

With budgetary constraints facing FDA, going after deceptive food label claims is something that can be done on a cost-effective basis using enforcement actions. Targeted enforcement actions send a very strong deterrent message to the rest of the food industry that there is a Federal cop on the beat.

We think that within the appropriated funds that FDA has to implement the statutory delegation, that the agency has to protect the public from misbranded or misleading food labels, and that these types of enforcement actions can be taken within the moneys that FDA already has at its disposal.

What the agency needs is a swift kick in the pants by Congress to let the agency know that Congress considers this to be a major budgetary priority. With the food label being turned over to all kinds of misleading and incomplete disclosures, Congress needs to come to bat on behalf of consumers, to protect them, and to make the food label as informative as it can possibly be.

Thank you very much.

Senator BURDICK. Thank you.

Mr. Zeller, in your statement you mentioned that the CSPI is supported by about 80,000 members. What groups or individuals constitute your membership?

Mr. ZELLER. It is a whole host of health-conscious consumers from college students to senior citizens, people who care about eating the safest foods and eating the most nutritious foods, and contributing to our efforts to change around Federal food safety and nutrition policies so that things like sulfites are taken out of the food supply and the nutrition label is made as informative as it can possibly be.

Senator BURDICK. Clearly, there has been criticism of food labeling practices despite improvement over the past 20 years. How would CSPI suggest that FDA proceed with reforming current health and nutrition claims on food packages?

Mr. ZELLER. Well, one thing that FDA has done that we are very concerned about is reversing an 81-year prohibition against explicit disease-prevention claims on the food label. FDA would basically turn the food label over to the food industry to make those types of health claims. We would urge FDA to proceed much more cautiously, to have a very careful program in place where truthful and nonmisleading information can be made available to the public. But that is not the direction that FDA is headed.

The first thing that FDA needs to do is have a more restrictive and cautious approach to health claims. I can tick off a couple of other quick recommendations, including mandatory nutrition labeling on all foods.

Right now, nutrition labeling—disclosing fat and sodium and calorie content and other micronutrient information—is not mandatory. We only have it on a little over one-half of all processed foods. Surveys show that consumers want this information on all foods so that they can compare the nutritional characteristics of different products. And it is not mandatory.

So, the next thing that we would urge is mandatory nutrition labeling.

Then we would leave it up to the experts at FDA to decide just how best to design the nutrition label. There is a controversy over whether or not there should just be macronutrient information: the fat, sodium, calorie, carbohydrate, protein disclosures. Do we really need to devote one-half of the nutrition label to vitamin and mineral disclosures? That is something that FDA in their expertise can take a look at.

But again, from the top down, there doesn't seem to be much concern about these types of issues. And since the survey data shows that consumers really want this information and desperately need it to modify their diets, we are talking about a reorienting of priorities at FDA to take a look at this.

Senator **Burdick**. Have you had an opportunity to review the national research publication entitled "Designing Foods"? If so, what steps do you think FDA should take to improve consumer knowledge of animal products in the marketplace?

We have looked at the report, and we think it is an excellent report in terms of defining priorities for the Department of Agriculture and the Food and Drug Administration.

If I can touch on a couple of labeling concerns in the report, the report singled out a greater disclosure of saturated fat and cholesterol content in foods, and restrictions on potentially misleading terms like "lean" and "lite," as well as an educational effort—and we think this can be done via the food label—to inform the public that highly saturated vegetable oils like palm and coconut oil are major sources of saturated fat.

These types of labeling reforms, in addition to the recommendations contained in the report for meat products that are lower in saturated fat and cholesterol, are the kinds of steps that the Government and consumers can take together to live longer. That is really what it comes down to.

Senator **Burdick**. Thank you very much.

Mr. **Zeller**. Thank you very much, Mr. Chairman.

[The statement follows:]

## STATEMENT OF MITCHELL ZELLER

Good morning. My name is Mitchell Zeller. I am the Assistant Director for Legal Affairs with the Center for Science in the Public Interest. With me today is CSPI staff attorney Charles Mitchell. The Center for Science in the Public Interest is a non-profit consumer organization which specializes in food, nutrition and related matters. CSPI was founded in 1971 and is now supported by approximately 80,000 members.

Today I would like to discuss three regulatory matters pending before the Food and Drug Administration (FDA) -- the "GRAS" Review of food additives, the need for action by FDA to protect consumers from alcoholic beverages contaminated with urethane, a known carcinogen, and the need for FDA to take a more active role in regulating food labeling. Our experience with FDA on these issues suggests that a re-allocation of budgetary resources together with a reordering of agency priorities is desperately needed.

### 1. FDA's Safety Review of Food Additives

Sulfiting agents are a group of food and drug preservatives that have killed at least seventeen persons and caused many other life-threatening reactions. The seventeen deaths resulted from reactions to sulfite-treated restaurant food. Since 1970, FDA has been reviewing the safety of all food ingredients, such as sulfites, that were previously considered Generally Recognized As Safe or "GRAS." In July 1982, as part as what is known as the GRAS Review, FDA issued a proposed rule affirming sulfites as safe for use in food.

FDA based its proposal to affirm sulfites as safe on a scientific literature survey completed in 1976. At no time between 1976 and 1982 did anyone at FDA update the literature search. In October 1982, my organization, the Center for Science in the Public Interest, petitioned FDA to ban or severely restrict the use of sulfiting agents. We took this actions after discovering numerous studies published between 1976 and 1982 which demonstrated that sulfites pose a life-threatening health hazard to asthmatics and other sensitive individuals.

Since our petition, the deaths of at least seventeen persons have been linked to reactions to sulfite-treated restaurant food. All told, FDA has received reports of more than twenty sulfite-related deaths that are under investigation. Hundreds of other sulfite-sensitive consumers have suffered reactions ranging from mild skin rashes to life-threatening anaphylaxis, coma, and brain damage.

Congress has indicated its concern over FDA's handling of the safety review of sulfites. Report language was included in the budgets for Fiscal Years 1984 and 1985 by this Committee that criticized FDA's handling of the sulfite problem.

In 1985, concerned about continued foot-dragging by FDA, the House of Representatives agreed to a Senate amendment to the FDA Fiscal Year 1986 appropriations bill that required FDA to complete the safety evaluation of sulfites by June 1, 1986. P.L. 99-190, Section 101(a), referencing H. Conf. Rep. 99-439, Amendment No. 81, 99th Cong., 1st Sess. (1985). See 131 Cong. Rec. 13322-27, 13333 (October 16, 1985).

Last year, this committee faulted FDA for failing to meet previous deadlines, and gave FDA two new deadlines. FDA has so far ignored the Committee's order to publish a proposed rule regulating all remaining uses of sulfites by February 1, 1988. S. Rep. 100-203, 100th Cong., 1st Sess., p. 127. Today, almost two years have passed since June 1, 1986, and FDA still has not completed any of the actions on sulfites that Congress ordered be done.

FDA has issued one rule, and proposed another, that address part of the sulfite problem. In July, 1986, in response to a mounting death toll and intense pressure from Congress, FDA banned sulfites from fresh fruits and vegetables. 51 Fed. Reg. 25,012 (July 9, 1986). In December, 1987, FDA proposed to ban sulfites from fresh, unlabeled potatoes. 52 Fed. Reg. 46,968 (December 10, 1987). These actions are only a first step. Many other uses of sulfites are capable of causing death and life-threatening reactions.

FDA continues to receive reports of deaths and life-threatening reactions from foods unaffected by the ban on fresh fruits and vegetables or the limited potato ban proposal. The deaths and reactions were caused by unlabeled sulfite-treated canned, frozen and dehydrated potatoes and white wine -- uses that remain legal today. Given the fact that there are several sulfite-free processed potato products (Ore Ida Tater Tots, Hash Browns, and Golden Patties) and at least one wine (Walthari) that contains no added sulfites, there appears to be no practical reason why a ban on the addition of sulfites to these foods cannot be ordered.

We urge this committee to maintain its vigilant watch over FDA by including bill language that requires FDA to publish final rules on sulfites by the end of calendar year 1988. We fear that without continued prodding from Congress, FDA will fail to respond in a meaningful way to the hazards posed by sulfites.

2. Urethane in Alcoholic Beverages

Last year, we asked that FDA be directed to take regulatory action against urethane, a wine and liquor contaminant that may cause cancer even in moderate drinkers. FDA's continued refusal to pursue regulatory responses to the urethane problem indicates that Committee action is even more necessary than before.

CSPI petitioned FDA in 1986 to issue rules limiting the amount of urethane that can be in alcoholic beverages and to recall highly contaminated products. Our request was modeled on actions taken by Canada, which, in 1985, set such limits and ordered highly contaminated products off of store shelves. FDA, however, has refused to impose mandatory limits on urethane levels. Instead, the agency recently accepted proposals by wine and liquor producers to voluntarily limit the amount of urethane that can be in newly produced alcoholic beverages.

The voluntary agreements are procedurally deficient. FDA has, in effect, set limits on urethane levels by foreswearing enforcement action against products that meet the conditions set in the voluntary agreements. The agency has taken this action without providing the public with notice and an opportunity for comment. In so doing, FDA has violated the Administrative Procedure Act. See Community Nutrition Institute v. Young, 818 F.2d 943, 948-49 (D.C. Cir. 1987).

Moreover, the voluntary agreements fail to adequately protect consumers' health. First, the agreements are unenforceable and do not provide for sanctions against products that contain more urethane than specified in the agreements.

Furthermore, the agreements fail to protect consumers from the many tainted products already on the market, undergoing aging, or in storage. In fact, consumers will not be able to purchase significantly purer alcoholic beverages until the late-1990's and beyond. For instance, some aged whiskeys covered by the agreement cannot be sold until the year 2001. The wine agreement imposes no actual limits on urethane until 1995. To make matters worse, imported products (18% of wine and 56% of whiskey sales in 1986) are not yet subject to the agreements at all.

FDA must initiate several regulatory actions to adequately protect the public's health. First, the agency must remove from the market existing products that pose a urethane hazard. FDA Commissioner Frank Young told the House Appropriations Subcommittee on March 30, 1988, that it would be "unfair" to impose restrictions on beverages already produced. However, as Canada's actions illustrate, it is possible to protect consumers from highly contaminated existing stocks. Given the ample evidence that many urethane-free products exist, FDA should limit avoidable risks by recalling tainted beverages. Until FDA does that, it should publicize the urethane levels found in specific beverages so consumers can make informed choices.

FDA must also stop citing "scientific uncertainty" as an excuse for bureaucratic inaction. Instead, the agency should promptly issue legally enforceable rules limiting the amount of urethane that can be in newly produced products. In the past, FDA issued such rules, known as "action levels," that limited avoidable exposure to potential carcinogenic contaminants such as aflatoxin in peanuts while it resolved technical and toxicological uncertainties. The action levels were set after FDA sampled the food supply for the contaminant and estimated what portion would violate a proposed level. FDA then decided what was economically feasible to sacrifice to protect consumers from risk that was known to exist, but could not be precisely quantified.

In sum, we are greatly concerned by FDA's continued refusal to invoke the regulatory process to protect consumers from urethane. The voluntary agreements leave consumers in jeopardy until the late-1990's and beyond. Therefore, we ask that FDA be required to expend FY 1989 funds to remove highly contaminated products from the market, to publicize the results of urethane tests, and to set action levels for urethane in wine and liquor.

### 3. Food Labeling Chaos: A Need for a More Vigorous FDA

Consumers are increasingly trying to follow the advice of health experts who recommend reducing fat, sodium and cholesterol intake, and increasing dietary fiber consumption. Conscientious efforts by millions of Americans to improve their diets are often stymied, however, by deceptive claims and incomplete disclosures on food labels. For many Americans, especially those who have suffered a heart attack or other diet-related illness, and who are on a restricted diet, this problem can quickly become a matter of life and death because the food label has become a veritable mine field of misleading information.

Consumers are dissatisfied with the current state of food labeling. Public opinion surveys indicate that 67 percent of consumers believe the government should be more involved in ensuring truthful labeling claims. Unfortunately, FDA does not believe food labeling should be an agency priority. Commissioner Young has stated that "no one has ever died form a food label." This is absolutely untrue, according to the National Research Council of the National Academy of Sciences. The NRC recently stated that federal food labeling policies must be revised to help consumers reduce their risk of coronary heart disease. The NRC urged FDA to provide consumers with saturated fat and cholesterol content labeling and to restrict the use of potentially misleading terms such as "lean" and "lite."

The food industry knows that FDA no longer cares about labeling. Industry representatives openly concede that many companies, in a competitive battle with other firms, often make false or misleading claims knowing that FDA will take no action against them. These representatives admit that there is no longer any incentive to abstain from deceptive labeling.

The following examples demonstrate why food labeling should be a major area of concern in the coming year:

* The Dietary Guidelines, the official dietary advice of the federal government, urges consumers to eat more **dietary fiber**. Heeding this advice is difficult because dietary fiber content is not a mandatory component of the nutrition label. The problem is compounded by misleading fiber content claims on cereal and bread labels. FDA has ignored a citizens petition filed last year to add dietary fiber to the nutrition label.

* FDA continues to allow 2 percent milk to be called **"low fat"** despite the conclusion of the National Heart, Lung and Blood Institute that 2 percent milk should be avoided by consumers trying to reduce fat intake. A serving of 2 percent milk contains 5 grams of fat and is 18 percent fat by dry weight, hardly a low fat food. CSPI petitioned FDA to prohibit the use of "low fat" on 2 percent milk. The agency answered that it cannot devote the resources necessary the respond to the petition.

* FDA has done little to stem the tide of so-called **"lite" claims** on food labels. It allows "lite" claims to refer to almost anything. Many such claims go entirely unexplained, often leading consumers to believe that a food is "lite" because it has less fat or sodium when the "lite" claim merely means the food is lighter in texture or color. The NRC report specifically identified this issue as a public health concern.

* Surveys demonstrate that most consumers favor **mandatory nutrition labeling** so that calories, sodium and other nutrition information will appear on all food labels. Currently, nutrition labeling is voluntary and appears on only about half of all processed foods. Sodium labeling, also voluntary, is not available on a balanced, cross-section of foods. FDA has opposed legislation that would make such labeling mandatory.

FDA, traditionally a regulator and protector of the food label, has abandoned its responsibilities and left consumers to fend for themselves. Increased appropriations for enforcement actions and rulemaking proceedings are needed so that consumers can get better information on food labels to improve their health. We urge the committee to stress the importance of effective food labeling as it considers FDA's Fiscal Year 1989 budget.

We would like to thank the Subcommittee for this opportunity to testify and would be happy to answer any questions.

## SUBCOMMITTEE RECESS

Senator BURDICK. The committee will be in recess until 2 o'clock.

[Whereupon, at 12 noon, Tuesday, April 26, the subcommittee was recessed, to reconvene at 2:22 p.m. that same day.]

(AFTERNOON SESSION, 2:22 P.M. TUESDAY, APRIL 26, 1988)

## NONDEPARTMENTAL WITNESSES

### SUBCOMMITTEE PROCEDURE

Members present: Senators Burdick, Cochran, and Grassley.

Senator BURDICK. The committee will please come to order.

This afternoon we continue our hearings with the nondepartmental witnesses on the first fiscal year 1989 budget for the Department of Agriculture and Related Agencies.

I remind you that your statements will be made part of the record in full, and we ask you to summarize them briefly within a period of 5 minutes. We have a stopclock up here, so if you could keep your eye on that and finish when the light turns red, it would be appreciated.

We cannot receive for the record any copyrighted material for publication unless arrangements have been made in advance to obtain the permission of the copyright owner to include the material in the hearing transcripts. This notice is given to protect copyright owners as well as the subcommittee and the witnesses.

Our first witness this afternoon will be the executive vice president of the National Rural Electric Cooperative Association, Bob Bergland, who will be joined by Tom Shows, general manager of the Pearl River Valley Electric Association in Mississippi.

We are glad to welcome someone from the Red River Valley who is familiar with the problems of agriculture, and it is a real pleasure to have you here today, Mr. Bergland.

## NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

### STATEMENT OF BOB BERGLAND, EXECUTIVE VICE PRESIDENT AND GENERAL MANAGER

### ACCOMPANIED BY TOM SHOWS, GENERAL MANAGER, PEARL RIVER VALLEY ELECTRIC ASSOCIATION, MISSISSIPPI

Mr. BERGLAND. Thank you very much, Mr. Chairman.

I have a rather lengthy statement that we will insert in the record, and I would like to briefly summarize by saying that REA is as important today as it was 55 years ago when the program started. The rural electric problems have changed over these 50 years, but they are no less significant.

We really have a tale of two cities in rural places, Mr. Chairman. In 20 States we are losing population because of the local economy. Its oil, its gas, its coal mining, its farming or timbering, or in some cases all of the above, are in such a depressed State that people lose jobs and leave.

As a result we have some very serious local economic problems associated with that failing economy, the consequence of which is that a number of our REA-financed powerplants are in serious financial difficulty. They were built in good faith years ago to energize a growing demand that has since disappeared.

So, our major financial problem is associated with getting these powerplant debts refinanced. We are grateful to you, Mr. Chairman, and your colleagues for arranging $2 billion in refinancing last year. This has been of enormous help.

These cooperatives borrow money privately with an REA guarantee, and payoff is high-priced interest rate money to the Federal Financing Bank. It really is a win-win arrangement and is buying time in every case, and in some cases it is going to mean the difference between surviving as an organization and bankruptcy, in which everybody loses.

We still have some high-priced debt in connection with our powerplant financing. We completed a survey, and I believe we have 30 generating and transmission systems that owe about $5.7 billion to the Federal Financing Bank above the current commercial market rates, and we would recommend that some additional amount be allowed to be refinanced. We would recommend the entire $5.7 billion, but we realize that this is a tough budget problem; so, anything you can do is appreciated very much.

In the rest of the country we are experiencing growth, in some places steady growth, so we have to approach the rural electric program from a local perspective; it is impossible to generalize in these matters.

We are in the process of promoting local rural economic and community development. Now, the passage of the REA 50 years ago in itself was a major economic development tool; but we are not looking at ways in which we can bring more jobs to rural places.

Our studies have convinced us that the strategy should be based on existing industry. We work with those industries already there, because they have proven the economic merit of their existence, and focused on small business. In rural places the growth in jobs is with small business enterprises.

We also know that all development is local, like all politics is local. People in the community must want to do something to improve their lot, and once they have made that choice, then the rest is much easier.

We think the rural electric cooperatives can be of enormous help in harnessing the energies of the local business and political community to bring everybody together.

There will be a need for outside support from the university for training, and perhaps some credit facilities. Clearly there is need for help with marketing and engineering. Those are critical components.

And someday we think REA's role should change to accommodate this very exciting new development in rural places—namely, bringing or keeping rural jobs.

In closing, Mr. Chairman, we are recommending that the amounts of money approved for lending to the REA cooperatives be the same as last year: $622 million minimum for the insured loan, a $933 million maximum range; on the guaranteed side, a minimum of $813 million, and a ceiling of $1.962 billion.

We are told by the REA that they have more applications on hand now than they have released for approvals, because they are considering this $622 million to be a ceiling. Well, in fact, the Congress established that as the floor for a loan program. The administration has said, "No, that constitutes a ceiling as well," and so the $622 million is now obligated, and they are telling borrowers now they have to wait for a new fiscal year.

We are reminding them that the Congress has very wisely allowed them to go up to $933 million, but they have said, "No," and so we have a political stalemate.

Mr. Chairman, I would like to yield now to my colleague, Mr. Tom Shows of Mississippi, who has a local story of considerable interest to share with this committee.

Mr. SHOWS. Mr. Chairman, I will be real brief.

The cooperative that I work for serves approximately 25,000 consumer members in southern Mississippi, and we are starting from an economically depressed area.

I am, therefore, very concerned about the administration's latest proposal to eliminate the REA Assured Loan Program. In some testimonies that they gave before this committee and other committees, they have said that it will only increase the bills, the average monthly bills of the rural electrics, about 74 cents per consumer.

In my specific example, it would increase my members' bills about $6 per month—not the 74 cents. And I actually took an actual loan that we had made and applied the process to it. So we are very concerned about that.

We want to thank you for allowing us to come today.

Mr. BERGLAND. Thank you, Mr. Chairman.

Senator BURDICK. Thank you, gentlemen.

Mr. Bergland, you have heard the testimony, in fact you have heard the administration advocate this 70-percent guarantee, and that the average cost to a consumer would be 74 cents a month. Is that an average figure for across the country?

Mr. BERGLAND. No, it is not, Mr. Chairman. Mr. Shows has shared with you their own example. The administration is trying to make substantial changes, particularly in the loan guarantee program, the G&T Powerplant financing.

The problem we have is that these cooperatives which were almost demanded in order to build powerplants when we had this huge energy crisis of 12, 14, or 15 years ago had no equity at that time. They had nothing to build on. They couldn't get financing through the usual conventional sources.

A power company will have 30, 40, or 50 percent of its wealth in equity reserves, but a cooperative has to do it entirely with borrowed money, and bankers simply can't finance most of these cooperatives; they have too little equity to offer as collateral. Without an REA loan guarantee, the interest rate in some cases would be in the junk bond class, and more than one-half of the cost of building and running a powerplant is interest expense.

So, without the REA guarantee, the cost to the consumer is going to go up a lot. We have a number of studies on this. It shows that in some cases the wholesale power cost would go up 50 percent to Tom Shows' cooperative. He would have to pass that on to the consumer, and it would result in a significant increase in the retail rates.

It is argued that some consumers can afford it and some can't. In most cases they can't in rural places, and we have evidence to argue that we have major economic problems, the most significant of which is underemployment.

While the unemployment numbers in rural places are at around 9 percent and are bad enough, the underemployment is 35 percent. We have large, large numbers of rural persons who have a poor paying part-time job and just simply can't afford to pay more on that light bill. They can't afford any more on the light bill. And if the REA program is altered in any significant way, as has been recommended by the administration, those light bills are going to go up, in some cases a lot, and it is going to hurt. No question about that.

Senator **Burdick**. One of the problems we have in the financial circles is that they say that you people in the REA cooperatives don't have any equity, and the reason we haven't got any equity is because we are building this for the users and the farmers and the people in the country. We weren't piling up equity. We are trying to resolve the rates and give them a fair rate, and now it has been used against us. Is that true?

Mr. **Bergland**. That is true, Mr. Chairman. I think we have, on average, about 3 percent equity in the generating and transmission cooperative-owned systems. We have some as high as 15 percent, and we have some that are technically bankrupt.

In most cases, an economist could take a look at some of our systems and would say that it is not feasible, that it doesn't make economic sense.

We have had the same criticism of many of the distribution cooperatives that are serving sparsely settled areas, low-income communities. From a pure business standpoint it makes no economic sense.

But we all know it is kind of like the school and the church and country roads: You need those facilities, and you need to have electricity, or large chunks of the United States will dry up and blow away.

So there is a strong public interest in maintaining a national program of rural electrification at affordable rates.

Unfortunately, we don't have deep pockets. We don't have a lot of reserves we can fall back on, and when times get tight, we get in trouble quick.

Senator **Burdick**. The point I was making is that we don't have those deep pockets in reserve because we are doing this for the consumer at the time.

Mr. **Bergland**. At the lowest possible cost, yes, sir.

Senator **Burdick**. Well, thank you very much. You made a good case. You convinced me. [Laughter.]

Mr. **Bergland**. Thank you, Mr. Chairman.

Mr. Shows. Thank you.

Mr. **Bergland**. I wish they all were this easy. [Laughter.]

[The statement follows:]

## Statement of Bob Bergland

It is my pleasure to appear before you today on behalf of the more than 25 million Americans in 46 states who rely on NRECA member systems to supply dependable and affordable electric energy for their homes, farms and businesses. The leadership of the nation's 1,000 consumer-owned rural electric systems appreciate the ongoing interest and support which our program has received from the members of this panel, along with a majority of your colleagues in the House as well as in the Senate.

Accompanying me today is the Vice Chairman of NRECA's national Standing Committee on Legislation, Mr. W. T. (Tom) Shows, who is general manager of the Pearl River Valley Electric Power Association in Columbia, Mississippi.

Before I discuss NRECA's recommendations for REA lending levels, I would like to provide you and the members of this committee with a brief report on the "State of the Program."

Rural electric systems continue to provide high quality and reliable electric service to more than 10 percent of the population of the Nation. Rural electric lines span some 75 percent of the Nation's land mass.

Recent data show that rural electric systems continue to operate under the same disadvantages that have traditionally existed in this program.

Rural electric systems now serve an average of 5.2 consumers per mile of line compared with 31 per mile for investor-owned utilities, and 65 per mile for municipal systems. Also, let me point out that all consumers of electricity in this country receive a federal subsidy, either through the tax code or directly.

Revenue per mile of line for a rural electric co-op amounts to $5,400 annually, compared to the $45,000 collected by investor-owned utilities and $79,100 earned by the average municipal system. Conversely, co-ops have invested $1,500 in distribution plant for each consumer compared to $1,020 for each investor-owned utility customer, and $970 for each municipal customer.

Today, more than 70 percent of all rural electric systems have higher rates than their neighboring utilities. This disparity can be traced to several factors:

-- The inherent disadvantages of serving sparsely settled areas;

-- The fact that rural electrics serve relatively few commercial and industrial loads compared to other utilities. Only about 1/3 of rural electric sales go to commercial and industrial consumers, compared to 2/3 in the case of investor-owned and municipal utilities. The relative absence of commercial load on co-op lines decreases the load factor and increases costs to all rural electric consumers, and

-- The fact that nearly 70 percent of the generation capacity of rural electric systems has been placed into operation during the past ten years -- a period of inflated construction costs and high interest rates.

Rural electric systems serve areas that have been hard hit by the economic crisis that has plagued much of our agricultural and rural economies. These economic difficulties have drastically reduced load growth for many rural electric systems.

In fact, today 255 of the nation's 930 rural electric distribution systems are losing consumers. This factor, combined with the high cost of constructing new generation plant have resulted in defaults by several generation and transmission (G&T) cooperatives. We are encouraged, however, that these problems are beginning to be resolved in a constructive manner through mutually beneficial agreements between REA and the G&Ts.

When I testified before this committee last year, I reported on a series of initiatives rural electric systems were taking to address some of the problems facing rural areas.

Last year, I reported on the organization of the National Rural Telecommunications Cooperative to direct the development of satellite-based telecommunications services for consumer, education and rural utilities business applications.

This year I am able to report splendid progress.

> Nearly 500 rural utilities have joined the telecommunications cooperative.
>
> The telecommunications cooperative has negotiated an attractive program package of news and information, educational programming and entertainment, and is now providing this service to more than 8,700 rural subscribers in 160 rural utility systems, and requests for service are coming in at a rate about 50 per day.

Last year, I reported that rural electric cooperatives have increased their focus on rural economic development.

As local community-based organizations, rural electric systems have always been involved in development projects -- in many cases in coalitions with other rural groups -- in addition to the provision of electric service.

I am happy to report that these activities continue.

According to data provided by the Rural Electrification Administration (REA), rural electric and telephone systems have provided a wide range of assistance to community, commercial, and industrial projects which have produced more than one million jobs over the past 25 years.

Today, the problems facing many rural communities have spurred electric cooperatives to increase their initiatives and activities in community and economic development. During 1986 alone these systems provided assistance which included arranging financing (205 systems), securing or providing development assistance (442 systems), plant design or other technical assistance (450 systems), providing office and meeting space, typing, clerical or other such assistance (312 systems), and contributing time, money, equipment and materials (316 systems).

These are but a few of the programs which rural electric co-ops are undertaking nationwide. It does not take into account the numerous other ways in which rural electric co-op systems -- through their own initiative -- are assisting their consumers, and the vital role that rural electric co-ops perform in their communities.

It is essential that REA remain the solid, dependable source of capital to keep these rural electric systems strong and vital.

Last year, I reported that this is not the agenda of this Administrator or this Administration. Unhappily, this is one area in which I am unable to report any change for the better.

The Administration's budget proposals for fiscal year 1989 are the same old fish in the same old wrapper. Essentially, the Administration would gut the rural electrification program at a time when we can begin to see some light at the end of a tunnel of rural depression, at a time when rural electric co-ops--the men and women who are members and employees of rural electric co-ops--are developing into a sturdy, dependable, engine to drive rural economic development.

At a time when the demand for capital for rural electric systems is increasing, the Administrator says that there is adequate private capital available for relatively secure loans.

At a time when the backlog of insured loan applications stands at nearly one year's authorization, the Administrator refuses to make loans much beyond the absolute "floor" authorized by this committee and by this Congress. Just in passing, let me note that I think this increasing loan demand is a cause for cautious optimism, a glimmer of hope that the rural economy is beginning to gain confidence.

At a time when the rural economy needs a shot in the arm, the Administration is giving it a kick in the pants. Let me illustrate this very quickly. Congress has five times authorized rural electric G&T systems to prepay high interest loans to the Federal Financing Bank and refinance at much lower interest rates privately.

At the insistence of the Congress, last fiscal year, the Administration reluctantly and grudgingly permitted the refinancing of some $582 million of that debt. In the interim, with the Administration dragging its feet and obstinately refusing to allow more prepayments, interest rates rose, eliminating that window of opportunity that could have saved rural electric consumers some $200 million dollars per year.

That window has re-opened somewhat. Interest rates have fallen slightly, and prepayment and refinancing is again an attractive option for many of these G&T systems.

And so, this fiscal year, the Congress again insisted that the Administration permit the prepayment and refinancing of a minimum of $2 billion.

The Administration permitted that amount of prepayment--to the penny--and refuses to permit the prepayment of any more . . . despite the fact that there is no statutory limit on how much can be prepaid.

The Administration is riding its high horse of obstinancy over the backs of rural electric systems, many of whom could use the help these prepayments would provide to maintain electric rates and, more important, to remain solvent.

There are, in the office of the Administrator of the REA, letters of application from 30 rural electric G&Ts to prepay $5.7 billion of high interest FFB loans. They languish on a shelf while needlessly spent dollars flow out the windows of these victimized G&Ts.

As the Committee is well aware, these unnecessary costs are being borne by rural electric consumers.

The loans represent a windfall for the Treasury. Rural electric G&T systems are paying high interest rates, the Treasury is rolling over its debt constantly and borrowing at substantially lower interest rates, and rural electric consumers are paying the difference.

We in the rural electric community do not believe that the intention of the REA loan guarantee program was to generate profits to the detriment of rural consumers.

## SPECIFIC PROPOSALS FOR FY 1989

According to the results of the NRECA Annual Loan Fund Survey, we have determined that the demand for REA funding will increase slightly in Fiscal 1989. As I mentioned before, the backlog of loan applications at REA is growing. However, the ranges in effect for fiscal 1988 will provide adequate funding for rural electric systems, if the Administration will make loans above the floor set by the Congress.

Specifically:

** We recommend the same loan levels as for the current fiscal year: a floor of $622 million and a ceiling of $933 million for insured loans, and a floor of $813 million and a ceiling of $1,962 for loan guarantees in the year beginning October 1, 1988, but with the provision that the Administrator make appropriate use of the range established by the Congress in order to reduce the backlog of loan applications.

** In establishing appropriations for loan losses, we strongly recommend that the Congress give serious consideration to the loan defaults that have taken their toll on the Rural Electrification and Telephone Revolving Fund. According to REA, in FY 1987, the Revolving Fund suffered losses of $252.2 million.

I must commend you, Mr. Chairman, and this Committee for the key role you played in securing an appropriation for losses to the Rural Electric and Telephone Revolving

Fund. This has done much to maintain the integrity of the fund and to sustain a reliable, affordable source of capital for rural electric systems throughout the nation.

I must also, Mr. Chairman, on behalf of rural electric systems and their 25 million consumers, commend the Committee for its efforts and success in maintaining loan ratios that are currently in force. By maintaining these ratios, REA borrowers have been spared the cost of obtaining ever greater portions of their financing from private sources, and rural consumers have been given substantial rate relief.

I would like for you, Mr. Chairman, and the Committee to know the value of maintaining the ratios. If, in 1972, that Administration had been able to change the ratios to 50 percent REA, 50 percent supplemental financing, then approximately $2.9 billion borrowed by rural electric systems at 5 percent would have been borrowed instead at 8 percent, 9 percent or more. Assuming 8 percent, that means that rural electric systems have saved nearly $90 million each year . . . for the life of the loans.

If this additional $90 million had been removed from our rural economies, it would have deepened the rural economic crisis of the 1980s.

I would also be remiss if I did not express appreciation for the Committee's insistence that the REA not use a general funds policy to deny loans to eligible borrowers.

We have several recommendations with regard to the Administration's budget proposals for the next fiscal year.

** We recommend that the Congress reject the Administration's proposal to eliminate the current insured loan program and replace it with a 70 percent guarantee program.

** We recommend that the Congress reject the Administration's proposal to deny loans to electric and telephone borrowers serving suburban, urban or recreational areas.

** We recommend that the Congress reject Administration proposals to replace the present 100 percent loan guarantee program with an 80 percent guarantee program.

** We recommend that the Congress reject the Administration's proposal to permit prepayment and private refinancing of rural electric G&Ts' Federal Financing Bank loans with an 80 percent guarantee. Congress has already made it abundantly clear--on five different occasions, in fact--that the intention of Congress is that G&Ts should be able to prepay with no penalty and to refinance privately with the current 100 percent REA guarantee.

This Committee and you, Mr. Chairman, have been good and faithful supporters of the rural electrification program, and we are deeply appreciative. We feel that the rural electric program represents a most desirable partnership of the government and the people, and we look forward with great enthusiasm to the continuation of this highly successful collaboration.

Thank you again, Mr. Chairman, for this opportunity to present our views to the Committee. I will be delighted to respond to any questions you may have now or at any time in the future.

## NATIONAL TELEPHONE COOPERATIVE ASSOCIATION

### STATEMENT OF MICHAEL E. BRUNNER, EXECUTIVE VICE PRESIDENT

Senator **BURDICK**. Our next witness will be Michael E. Brunner, executive vice president of the National Telephone Cooperative Association.

Welcome to the committee.

Mr. **BRUNNER**. Thank you, Mr. Chairman, and good afternoon.

I also have submitted a formal statement and will not read that but will summarize that very briefly, if I may.

Senator **Burdick**. It will be received.

Mr. **Brunner**. Thank you, Mr. Chairman.

I am Michael Brunner, executive vice president of the National Telephone Cooperative Association, a national trade association representing over 450 small rural telephone companies and cooperatives serving rural subscribers in over 40 States.

I appreciate the opportunity to present testimony to this committee on a subject of continuing great importance to NTCA members, and that is the REA Program and its telephone loan programs.

The highest priority for small rural telephone companies is to provide affordable telephone service to their customers in rural areas.

The telecommunications industry, as you know, is in the midst of a major deregulation era. As competitive forces are introduced, small rural telcos need access to REA loan programs to fund capital improvements such as digital switching equipment and fiber optics, which are needed in order to provide modern, affordable telephone service.

We know and we appreciate the fact that you and your committee share our concern that rural areas should not deteriorate with second-class service. This is why we find the administration's fiscal year 1989 budget proposals for REA so shortsighted.

As you know, Mr. Chairman, in its fiscal year 1989 budget proposal, the administration seeks to terminate all direct Federal support for telephone and electric loans from the REA and Federal Financing Bank, as well as to discontinue capitalization of the Rural Telephone Bank.

Under this proposal, there will no longer be a direct loan program, and we find that unacceptable. Instead, REA will provide 70 percent guarantees on new loans that telcos would have to obtain from commercial lenders.

The current REA 100-percent guaranteed FFB loans would be reformed into 80 percent REA-guaranteed private loans, and various other "reforms"—and I put that word in quotes—are included in the package.

Mr. Chairman, the administration's budget proposals are unjustified, and in our opinion fail to take into account the rapidly changing technology and competitive environment in an industry that is being deregulated.

New technological advancements in the field of telecommunications can have, we believe, a very positive economic impact on rural areas and improve the quality of life in rural America.

For the past 25 years, step, or electromechanical, switches with limited capacity have served as the backbone for rural telcos. This equipment has or is rapidly reaching the end of its useful life. Step switches are being replaced with digital computer switches which allow telcos to offer numerous additional features to their consumers.

Digital switch service, however, is the key to providing modern telecommunications service for rural telephone systems. About 60 percent, more than half, of rural telephone systems don't have digital equipment in their service areas, and it is going to be many, many more years before rural subscribers all have it.

Digital switches improve service and allow telcos to offer such popular features as call waiting and call forwarding. They also make available federally mandated equal access, Signal System 7, and Open Network Architecture to telcos and their subscribers.

This kind of changing technology is characteristic of the telecommunications industry of the late 1980's. I cannot overemphasize how important it is that rural telephone customers be given the same opportunity to move to 20th century service as their urban counterparts.

We cannot have two systems, one for urban and one for rural. They have to be the same modern system.

With the help of the REA Telephone Loan Program, rural telcos are able to replace obsolete equipment in order to provide better services to their subscribers.

REA borrowers, as you know, serve high cost, low density regions, which means that large capital costs must be spread over fewer subscribers. REA plays and has played a vital role in financing these technological changes, because most borrowers, contrary to REA's assessment—and we disagree with REA in this, but contrary to their assessment—most borrowers cannot and do not qualify for commercial loans. And systems unable to qualify for commercial loans would not be eligible to participate in the administration's proposed 70 percent and 80 percent guaranteed loan program that would replace the current REA direct and guaranteed loan program.

REA, as you know, presently fills the void by allowing telcos to purchase modern equipment that prevents rural Americans from becoming in fact second-class service areas.

Although America's rural telephone system serves more than 12 million people—and there is the key statistic, I think—they average only 5.6 customers per mile of telephone line. That is 5.6 versus 50 customers for the average telephone company, and 130 customers for the Bell, the large Bell Co. That is quite a difference, 5.6 versus 130.

NTCA urges the committee to reject the administration's budget proposals. Instead, we urge you to freeze REA and RTB lending at the fiscal year 1988 authorized levels.

And finally, to guarantee that REA meets the minimum lending levels established by Congress, we request that Congress continue its prohibition against REA's application of its general funds policy, and we urge that REA be instructed to retain sufficient technically qualified personnel to process loans in a timely manner.

Mr. Chairman, in conclusion, I just want to say that our members from all over the country know about and appreciate the strong support that the Burdick subcommittee and the members of this subcommittee have provided. We know you have been under the gun from other Members of Congress on occasion because of the deficit, talking about making cuts here; you have been strong as individuals and as a subcommittee in supporting rural America and supporting these programs. Our members appreciate it and we appreciate it. We want you to know that we very much appreciate you all as the champions of rural America.

Thank you, Mr. Chairman.

Senator **Burdick**. Thank you.

Regarding the administration's budget proposals to accelerate the privatization of the Rural Telephone Bank—how does that privatization affect NTCA members?

Mr. **Brunner**. Well, Mr. Chairman, that is a good question. Of course, as you know, the administration is talking about privatizing and starting immediately, and the law requires that it not be done until 1995. We think we ought to stick to the law.

Most of our members borrow some combination from REA proper and some combination from the Rural Telephone Bank. It is a primary lending source for us, and it is working well. We are very concerned that their method of privatization might deny us that very important lending source.

So we are concerned about that. It violates the law as is currently written, and we hope the Congress will reject that.

Senator **Burdick**. Do REA borrowers serve urban or urban/metropolitan areas? If so, why should Congress continue to provide low interest rate loans in these areas?

Mr. **Brunner**. Mr. Chairman, our members serve rural areas. As you know, there is a provision in the law—I think it is 1,500 populations and less. As I mentioned, the key figure I think is the average density, 5.6 customers per mile, which is very, very low.

In a few cases, some of those areas have improved—there have been some resorts—but that is only a very small part of one company's service area. If you average the whole density in the whole area, it still is only 5 or 6 or 4 or 3.

But I look at those as a tribute to some development in rural America, when you define more ways to develop and help rural America become strong again.

So we don't think that is a legitimate case. We think the administration is overstating that, and we don't believe it is accurate. We do serve rural America and will continue to.

Senator **Burdick**. Most of these areas you refer to have grown into the REA area?

Mr. **Brunner**. Yes, sir; and sometimes they have been small and they have expanded and, of course, the main thing is to keep serving the rural areas.

Senator **Burdick**. Thank you very much.

Mr. **Brunner**. Thank you, Mr. Chairman.

[The statement follows:]

## STATEMENT OF MICHAEL E. BRUNNER

Mr. Chairman and distinguished members of the committee, my name is Michael E. Brunner. I am Executive Vice President of the National Telephone Cooperative Association (NTCA), a national trade association representing over 450 small telephone companies and cooperatives serving rural subscribers in over 40 states. I appreciate the opportunity to present testimony to this committee on a subject of continuing great importance to NTCA members -- the Rural Electrification Administration (REA) and its telephone loan programs.

The highest priority for small telephone companies is to provide affordable telephone service to their customers in rural areas. The telecommunications industry is in the midst of a deregulation era. As competitive forces are introduced, small rural telcos need access to REA loan programs to fund capital improvements such as digital switching equipment and fiber optics, which are needed to provide modern, affordable telephone service. We know that you share our concern that rural areas not deteriorate with second class service. This is why we find the Administration's Fiscal Year 1989 budget proposals for REA so shortsighted.

### ADMINISTRATION'S BUDGET PROPOSAL

As you know, in its FY 1989 budget proposal, the Administration seeks to terminate all direct federal support for telephone and electric loans from the REA and Federal Financing Bank (FFB) as well as discontinue capitalization of the Rural Telephone Bank. Under this proposal, there will no longer be a direct loan program. Instead, REA will provide 70 percent guarantees on new loans that telcos would have to obtain from commercial lenders. The REA 100% guaranteed FFB loans would be reformed into 80 percent REA-guaranteed private loans. Various other "reforms" are included in the package. The Administration's proposal ignores the fact that this subcommittee has repeatedly rejected less drastic measures to reduce funding for these important programs. Some of the "reforms" that are requested would overturn legislation that was passed only four months ago.

### REA'S ROLE IN TELECOMMUNICATIONS TECHNOLOGY

Mr. Chairman, the Administration's budget proposals are unjustified and fail to take into account the rapidly-changing technology and competitive environment in an industry that is being deregulated. New technological advancements in the field of telecommunications can have a positive economic impact on rural areas and improve the quality of life.

For the past 25 years, step (electromechanical) switches with limited capacity have served as the backbone for rural telcos. This equipment has or is rapidly reaching the end of its useful life. Step switches are being replaced with digital computer switches which allow telcos to offer numerous additional features to their consumers.

Digital switch service is the key to providing modern telecommunications service for rural telcos. About 60 percent of rural telephone systems don't have digital equipment in their service areas. Over 2100 digital switches have already been installed, leaving about 2600 switches yet to convert to digital. These switches are installed at an average rate of 300 per year, so it will be many more years before most rural subscribers have digital service.

Digital switches improve service and allow telcos to offer such popular features as call waiting and call fowarding. They also make available federally mandated equal access, Signal System 7 (SS7) and Open Network Architecture (ONA) to telcos and their subscribers.

Equal access guarantees AT&T's competitors the same quality of connection to the local telephone network and allows rural subscribers to chose their long distance service carrier. Urban citizens already have that choice.

SS7 is a computer data based control network that allows the user to store any information and includes advanced 800 service thus making more goods and services available to rural areas. SS7 hardware is an additional cost to the digital system and must be available for competitive telecommunications services to be offered in rural areas.

Open Network Architecture provides access to various computer services available and will be necessary to attract and keep businesses in rural areas. Digital equipment and upgrading is required to provide ONA and the necessary software is an additional cost to the digital system.

Another important innovation in telecommunications has been the advent of fiber optics. Fiber optics are being installed for linking between exchanges and central offices. Fiber optics not only provide better service with lower maintenance, but also allows telephone systems to expand indefinitely without laying additional cable.

This changing technology is characteristic of the telecommunications industry in the late 1980's. I can't overemphasize how important it is that rural telephone customers be given the same opportunity to move to 20th century service as their urban counterparts. With the help of the REA telephone loan program, rural telcos are able to replace obsolete equipment in order to provide better services to their subscribers.

CONTINUED NEED FOR REA TELEPHONE PROGRAMS

REA borrowers serve high cost, low density regions which means that large capital costs must be spread over fewer subscribers. REA plays a vital role in financing these technological changes because most borrowers, contrary to REA's assessment, don't qualify for commercial loans. REA fills the void by allowing telcos to purchase modern equipment that prevents rural Americans from becoming second class service areas.

Although America's rural telephone systems serve more than 12 million people, they average only 4.6 customers per mile of telephone line compared with 50 consumers per mile for all telephone companies and about 130 for the Bell companies. REA borrowers serve an average of 5,000 subscribers. Rural telephone systems serve about 5 million farms, homes, schools, churches, commercial enterprises and other establishments in all 50 states. Providing telephone service to these rural areas continues to be uneconomical.

REA borrowers have a composite percentage of equity of 34%, compared to 55% for the industry as a whole and over 57% for the Bell companies. This does not make them attractive borrowers from commercial lenders. REA borrowers cannot afford to pay commercial interest rates. One-fourth of these telephone systems have less than 1,000 subscribers and one-half have less than 2,000. Many office buildings serve more subscribers. In general, due to the highly capital intensive nature of providing phone service in rural areas, REA borrowers' financial picture does not make them attractive to commercial lenders as potential customers. For many REA borrowers, an operating deficit in a single year can eliminate a company's equity. This leads to a situation where some companies exhibit widely fluctuating returns on equity from year to year, particularly since they serve high risk areas. One small system in nearby West Virginia has a net worth of minus 13%. Systems unable to qualify for commercial loans now won't be eligible to participate in the Administration's proposed 70% and

80% guarantee loan program that would replace the current REA direct and guarantee loan program.

CONCLUSION

NTCA urges the committee to reject the Administration's REA budget proposals. Instead, we urge you to freeze REA and RTB lending at the FY 1988 authorized levels:

| | |
|---|---|
| Insured Loans | $239,250,000 - $311,025,000 |
| RTB Loans | $177,045,000 - $210,540,000 |
| Guarantees | $119,625,000 - $138,765,000 |
| RTB Capitalization | $ 28,000,000 |

In order to guarantee that REA meets the minimum lending levels established by Congress, we request that Congress continue its prohibition against REA's application of its general funds policy and we urge that REA be instructed to retain sufficient technically qualified personnel to process loans in a timely manner.

Mr. Chairman and members of the committee, I appreciate the opportunity to appear before you today. Again, let me emphasize NTCA's appreciation and support for the leadership you have shown in addressing the REA program.

## CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS

### STATEMENT OF DR. WILLIAM HEFFERNAN, PROFESSOR OF RURAL SOCIOLOGY, UNIVERSITY OF MISSOURI

Senator **BURDICK**. Our next witness will be Mr. William Heffernan, professor of rural sociology, University of Missouri, Consortium of Social Science Associations.

Welcome to the committee.

Dr. **HEFFERNAN**. Mr. Chairman, Senator Grassley, I appreciate the opportunity to be here today.

My name is Bill Heffernan, and I am professor of rural sociology at the University of Missouri at Columbia, and I am president of the Rural Sociological Society. I am testifying today on behalf of the Consortium of Social Science Associations, better known as COSSA, which represents 185,000 American scientists across the wide spectrum of social and behavioral science disciplines. I will have a list of COSSA members, affiliates, and contributors attached to my testimony.

Late last May, Representative Tom Coleman of Missouri, in a hearing before the Subcommittee on Conservation, Credit, and Rural Development of the House Agriculture Committee, noted that the Land Grant College System in this country had been very successful in achieving its mandate to improve agricultural production. He then challenged the Land Grant College System to transfer some of its intellectual resources into the process of coming up with new ideas of what we can do in rural areas other than traditional agriculture, so that people can live in rural communities and raise their families in the future.

State Agriculture Experiment Station directors have also recognized the need to expand the mission of this system. In their 1989 request, the State Agriculture Experiment Station directors requested $13 million for research on family and community well-being. This research request was eliminated in the President's budget.

We urge this committee to restore the $13 million for research in family and community well-being which the experiment station directors had included in their fiscal year 1989 budget request to the Cooperative State Research Service of the Department of Agriculture.

I need not tell you, gentlemen, that rural communities need the assistance of many different groups and people and all the help they can get as they attempt to adjust to some if the changes being forced upon them. These changes, of course, many times are beyond their control, the result of national and international political and economic conditions.

It is becoming increasingly obvious that the problems faced by many of our rural communities will not even be solved with the farm policy. What we need are some new models and approaches that can help to revitalize rural America.

There are numerous rural communities across this country which have reversed the sense of helplessness and hopelessness which they experienced in the mid-1980's. They are making major strides toward becoming socially and economically viable rural communities.

Little research has been done directed toward attempting to understand how some of these communities are able to turn things around.

In many cases, good descriptive data on what is happening in rural communities is very limited. This situation is made more complicated because of the variations between rural communities. Problems and needs of rural community leaders in the Midwest, where the human and economic bases are shrinking, are quite different from the needs of rural community leaders on the east and west coasts, where rural communities are experiencing urban growth and sprawl.

We need sound research information on which to base effective development policy. Allow me to share an example with you. In the past couple of years I have been involved in a team effort, which included this subcommittee, in an attempt to develop an effective program to assist rural families facing severe psychologic and economic problems.

In 1985 I received a call from the Department of Agriculture, which was a followup to a request by the House Agriculture Committee. The basic question was: What is happening to farm families being forced from their farms, and what are the immediate needs of these families? No research was directly available with which to address this question.

With financial assistance from the Economic Research Service of the Department of Agriculture and Hatch Funds available through the Missouri Agriculture Experiment Station, my wife Judith and I undertook a study to obtain the answers to the question. We collected and analyzed data, and we reported the results back to the Agriculture Committees by the end of April.

The conclusions, which emphasized the need for mental health outreach programs, job retraining programs, economic development, and special grants for youth were utilized by Members of Congress as they drafted section 1440 of the Food Security Act of 1985.

While this legislation was being drafted in Washington in the summer of 1985, a rural sociologist and an agricultural economist at the experiment station at Cornell did a similar study of dairy farmers who had been forced off of their farms. This was extremely important, since our original study was limited both in terms of the number and the amount of time we had to do the study. Their results supported the original findings.

Following authorization, $3.35 million was appropriated for eight States to start a demonstration program to assist these distressed farm families.

The evaluation of the 1987 effort currently being compiled is showing that thousands of farm families have been assisted.

In North Dakota, for example, the 1440 funds were used to develop a small business retention program, a local government service program, an entrepreneurial program for youth, and in cooperation with Mental Health established a crisis hotline.

Senator Grassley, I know you are very aware that in Iowa reports show that 512 families in 25 Iowa counties received special assistance during the past year as a result of the 1440 funds.

Much of the research has already been done in some of these areas as a sort of benchmark from which we can begin, but we simply were not prepared for the tremendous changes that have occurred here in the decade of the eighties.

I have listed here and I will turn in to you a number of questions that might be addressed by such research.

Let me just close by saying community preference studies show that a vast proportion of this country's population would like to live in small towns and cities or in rural areas. During the improved economic conditions of rural America in the 1970's, many persons expressed this preference by moving to rural America, even when it meant considerable economic sacrifice to the family.

Today, this trend has been reversed in many areas. At present, this country is operating under a de facto urban development policy. This is more the result of inattention to the needs of rural communities and people than to any deliberate policy design.

The potential exists to generate new models and new solutions to many of the problems facing rural communities. The Land Grant College System can play a vital role by providing the basic knowledge of what is occurring in rural areas and how Federal, State, and local efforts can be utilized most effectively to create viable rural communities.

The foundation of such an effort is developing a sound research base.

Therefore, we urge you to appropriate $13 million to the Cooperative State Research Service for research in family and community well-being in rural America.

Thank you for the opportunity to present our views.

Senator **Burdick**. Thank you.

Senator **Grassley**. I don't have any questions. I just came because I am well-acquainted with the Professor and wanted to hear his point of view and to say "hi" to him personally.

We do appreciate your leadership in this area and your testimony, and the fact that we don't ask questions should not detract from that in any way. In fact, it won't.

Dr. **Heffernan**. Thank you very much, Mr. Chairman.

Senator **Burdick**. I think I will ask you a question; I don't want to let you off that easy. [Laughter.]

We in Congress are certainly fortunate to be able to call on you and your wife to help provide background information on the effects of the farm crisis on rural families. Section 1440 legislation that followed has made a big difference to many communities.

Have you undertaken any surveys to determine the actual benefits of section 1440 in any particular areas?

Dr. **Heffernan**. In Missouri my wife and I, in fact, are in the process right now of doing that type of evaluation. We are showing that we had contact with over 12,000 people. We could give you some very specific cases of where we think we have made a major difference, in fact in some cases of saving families from what otherwise might have been rather tragic disasters.

Hopefully by about the first of July, you will receive a more complete report from the Federal Extension Service, as all of the States are in fact putting together that evaluation, and Dr. Marv Konja is compiling that right now. We are all going to be reporting back to him.

But the fact is, I know many of the people who have been program directors in the various States, and when we do get together we share the stories we have had and the success we have had as a result of this program.

Senator **Burdick**. I was pleased to note on top of page 3 of your testimony that you were in contact with North Dakota on the 1440 program.

Dr. **Heffernan**. That is right, on several of their programs. And again, those programs—they are making minor adjustments, as you know, for this year on some of the changes and adding a couple of new programs. But they have been very successful also.

Senator **Burdick**. Thank you very much.

Dr. **Heffernan**. Thank you.

[The statement follows:]

## STATEMENT OF WILLIAM D. HEFFERNAN, PH.D.

My name is William Heffernan and I am Professor of Rural Sociology at the University of Missouri-Columbia and President of the Rural Sociological Society. I am testifying today on behalf of the Consortium of Social Science Associations (COSSA) which represents 185,000 American scientists across the wide spectrum of social and behavioral science disciplines. A list of COSSA Members, Affiliates, and Contributors is attached.

Last May, Representative E. Thomas Coleman of Missouri, in a hearing before the Subcommittee on Conservation, Credit, and Rural Development of the House Agriculture Committee, noted that the Land Grant College System in this country had been very successful in achieving its mandate to improve agricultural production. He then challenged the Land Grant College System to transfer some of its intellectual resources "into the process of coming up with new ideas of what we can do in rural areas other than traditional agriculture so that people can live in rural communities and raise their families in the future."

State Agricultural Experiment Station directors also recognized the need to expand the mission of the experiment station system and put more emphasis on family and community. The directors had included in their FY 1988 budget request to the Cooperative State Research Service of the Department of Agriculture a request for $2 million for rural development research.

In their 1989 request, the state Agricultural Experiment Station directors requested $13 Million for research on family and community well-being. This research request was eliminated in the President's budget. We urge this committee to restore the $13 million for research in family and community well-being which the experiment station directors had included in their FY 1989 budget request to the Cooperative State Research Service of the Department of Agriculture.

Rural communities need assistance as they adjust to the changes being forced on them. For the most part, they are unable to control these changes which result from national and international political and economic conditions and policies. It is becoming increasingly obvious that many of the problems faced by rural communities can not be solved with farm policy. Even if the economic base of agriculture improved dramatically, it would not significantly assist most rural communities in improving their ability to provide adequate services and an environment in which rural families can prosper. Many rural communities today depend very little on agriculture for their economic base. The use of farm policy to insure the vitality of rural communities is relatively inefficient and ineffective. We must seek new approaches at federal, state and local levels.

New models and approaches can be generated to help revitalize rural America. There are numerous rural communities across this country which have reversed the sense of helplessness and hopelessness experienced in the mid 1980s. They are making major strides toward becoming socially and economically viable rural communities. Little research has been directed toward attempting to understand how some communities are able to obtain such success.

In many cases, good descriptive data on what is happening in rural communities are very limited. This situation is made more complicated because the variation between rural communities is great. The problems and needs of rural community leaders in the Midwest, where the human and economic bases are shrinking, are quite different from the needs of rural community leaders on the East and West coasts where rural communities are experiencing urban growth and sprawl.

Currently a set of papers focusing on policy alternatives for rural development is being written by social scientists across the country. The papers will be presented at regional workshops this fall. Some of the most capable professionals are devoting considerable time and energy to the effort. They are examining new and creative ideas and models. However, the effort also underscores the fact that good, solid research from which to develop these models is limited.

Sound research information is vital to developing effective policy. Allow me to share an example. In the past couple of years I have been involved in a team effort which included this Subcommittee in an attempt to develop an effective program to assist rural families facing severe psychological and economic problems.

In 1985, I received a call from the Department of Agriculture, which was following up a request by a member of the House Agriculture Committee. The question raised by the Congressman was: what is happening to farm families being forced from their farms and what are the immediate needs of these families? No research was available which directly addressed the question. With financial assistance from the Economic Research Service of the Department of Agriculture and Hatch Funds available through the Missouri Agricultural Experiment Station, my wife, Judith, and I undertook a study to obtain answers to the questions. We collected and analyzed data and reported the results back to the Agriculture Committee by the end of April. The conclusions, which emphasized the need for mental health outreach programs, job retraining programs, economic development and special programs for youth, were utilized by members of Congress as they drafted Section 1440 of the Food Security Act of 1985.

While legislation was being drafted in Washington in the summer of 1985, a rural sociologist and agricultural economist at the Experiment Station at Cornell University were replicating our original study. Their results supported the original findings. Following authorization by the House of Representatives, this committee appropriated $3.35 million for FY 1987 to support an eight state demonstration program to assist distressed farm families. The evaluation of the 1987 efforts currently being compiled is showing that thousands of farm families have been assisted.

With the support of this Committee, research conducted in a couple of states not only helped persons in those states, but families in other states as well. As a result of the research, authorization and appropriations for 1440 programs, North Dakota developed a small business retention program, a local government service program, an entrepreneurial program for youth and, in cooperation with mental health, established a crisis hotline. In addition, 512 families in 25 Iowa counties received special assistance during the past year. In Iowa 1440 funds were used to develop an outreach program designed to connect families who need special assistance during especially difficult times to numerous programs already available.

The original studies, plus others which focused more specifically on selected dimensions of those studies, have greatly enhanced our informational base. These research results have been utilized by a number of public and private organizations. Some efforts have been in conjunction with the 1440 programs, but many have originated from other initiatives. The data are being used by national, state and local mental health providers to improve their programs and to develop legislation to support special efforts to improve mental health services in rural America. The Department of Labor's Displaced Farmer Program, religious organizations, schools, health care organizations and numerous other groups are using this research information as a basis to make their programs more effective in meeting the needs of this segment of the rural population.

Some research needs simply require an expansion of research efforts which have been in progress for sometime. Child and family development specialists have had a long-term interest in individual and family stress. The rapid increase in farm suicides, family abuse, youth problems and drug abuse in rural America resulting from individuals and families being unable to cope with the stress that resulted from major changes in their lives has highlighted a need for more research in this area. A research study in the North Central region on "Stress, Coping and Adaptation in the Middle Years of the Family Life Cycle" is just being completed. This research project attempted to determine how some families were able to provide the necessary support to family members during especially stressful times in such a way as to prevent some of the negative social behaviors. Other researchers are focusing on how rural communities can provide assistance to troubled rural families through the establishment of social support groups, hotlines and other mechanisms. The information obtained from these research efforts has provided the informational base needed to establish new

Extension programs such as "Helping Farm Families Live With Stress". Information from this research is also made available to schools, churches and other care givers seeking to provide assistance to rural families.

In March of this year, over three hundred social scientists from across the country pooled their expertise to identify some of the major priority issues requiring rural social science attention. I had the opportunity to co-chair the Natural Resource and Community area. We had six work groups focusing on different dimensions of rural communities. A sample of some of the research priorities they listed gives an indication of the types of questions requiring social science research. Some of the issues needing attention are very general and include:

1. How will people distribute themselves across the land in the 21st Century?
2. What desirable patterns of land settlement will be sustainable for the long term?
3. What justifiable claims do people who choose a rural lifestyle have upon the rest of society and what justifiable claims do people in urban areas have upon those who live in rural areas?

Other research questions focus more on understanding the changes that occur in rural communities. They include:

1. What are the changing social demographic characteristics and how will these changes impact the social and economic needs of rural communities?
2. How will rural communities relate to the larger society and the entire world in the future?
3. How can new technology be used to integrate rural communities with national and international systems?

Another set of research issues examines how to enhance the ability of rural communities to cope with change. These include:

1. What are the leadership skills that are needed in rural communities to enable them to establish achievable goals, manage change and maintain sustainable validity?
2. Can rural communities benefit from urban influences and opportunities while also maintaining their essential rural characteristics? If so, in what ways?
3. How can citizen involvement be broadened and enhanced to create effective public decision-making in rural communities?

Some research priorities focused on disadvantaged rural people. Some of the researchable items include:

1. What are the changing causes, composition and impacts of rural poverty?
2. How equitable and effective are existing programs and strategies for rural disadvantaged groups?
3. What are some of the innovative concepts, models and approaches for rural education, training and employment programs to aid rural disadvantaged?

Many research issues were concerned with the capacity of local governments to serve rural communities. Some of questions include:

1. What are the cost differentials resulting from alternative schemes for delivering services, from including alternatives such as consolidation, economies of scale, user fees, privatization, intergovernmental contracting, special service districts and joint public/private venture?
2. What new data bases and technologies are needed to assist local decision-makers?
3. Can new models for program evaluation and personnel performance be created which will improve the efficiency and productivity of government serving rural areas?

The list of research topics continues by looking at a host of issues surrounding the needs of rural communities in the future and the new organizational models necessary to effectively deliver services.

One of the conclusions reached in the community area of the Social Science Agriculture Agenda Project was that we do not currently have enough trained professionals to adequately cover all of the research priority needs. However, there is a growing interest on the part of many rural social scientists to become more involved in family and community research. Additional research funds would entice others to join this effort. In the past year, several members of the Sociology of Agriculture Research Committee of the Rural Sociological Society joined with members of the Community Research Committee and set up a Research Committee on Public Policy. If funds were available, I am sure that other traditional rural social scientists, such as agricultural economists and those in colleges of Home Economics and Life Sciences could also be encouraged to apply their training and expertise to community issues.

In addition, there are numerous other social scientists at Land Grant Colleges who are not normally a part of the Experiment Stations. If additional research funds were made available to those interested in rural family and community issues, many of these social scientists could be attracted to focus their attention on rural issues. This would broaden the intellectual base.

Community preference studies show that a vast proportion of this country's population would like to live in smaller towns and cities, or in rural areas. During the improved economic conditions of rural America in the 1970s, many persons expressed this preference by moving to rural America, even when it meant considerable economic sacrifice to the family. Today this trend has been reversed in many areas. At present this country is operating under a de-facto urban development policy. This is more the result of inattention to needs of rural communities and people than to any deliberate policy design. The potential exists to generate new models and new solutions to many of the problems facing rural communities. The Land Grant College System can play a vital role by providing the basic knowledge of what is occurring in rural areas and how federal, state and local efforts can be utilized most effectively to create viable rural communities. The foundation of such an effort is developing a sound research base.

Therefore, we urge you to appropriate $13 million to the Cooperative State Research Service (CSRS) for research in family and community well-being in rural America. Thank you for the opportunity to present our views.

# CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS

## Members

American Anthropological Association
American Economic Association
American Historical Association
American Political Science Association
American Psychological Association
American Sociological Association
American Statistical Association
Association of American Geographers
Association of American Law Schools
Linguistic Society of America

## Affiliates

American Assembly of Collegiate Schools of Business
American Association for Public Opinion Research
American Educational Research Association
American Society of Criminology
Association for Asian Studies
Association for the Social Sciences in Health
Eastern Sociological Society
Federation of State Humanities Councils
Gerontological Society of America
History of Science Society
International Studies Association
Law and Society Association
Midwest Sociological Society
National Council on Family Relations
National Council for the Social Studies
North Central Sociological Association
Northeastern Anthropological Association
Operations Research Society of America
Population Association of America
Regional Science Association
Rural Sociological Society
Social Science History Association
Society for the History of Technology
Society for Research on Adolescence
Society for Research in Child Development
Society for the Scientific Study of Religion
Southern Sociological Society
Southwestern Social Science Association
Speech Communication Association
The Institute of Management Sciences

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Duke University
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Harvard University
Howard University
University of Illinois
Indiana University
Institute for Research in Social Science, UNC-Chapel Hill
Institute for Social Research, University of Michigan
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New York University
University of North Carolina, Chapel Hill
Ohio State University
University of Oregon
University of Pennsylvania
Pennsylvania State University
University of Pittsburgh
Princeton University
Rutgers University
Social Science Research Council
University of Southern California
Stanford University
State University of New York at Stony Brook
University of Tennessee, Knoxville
Texas A&M University
Tulane University
University of Virginia
University of Washington
University of Wisconsin, Madison
University of Wisconsin, Milwaukee
Yale University

## COUNCIL FOR AGRICULTURAL RESEARCH, EXTENSION AND TEACHING

### STATEMENT OF KAYE BRAATEN, CARET DELEGATE FROM BARNEY, ND

Senator **BURDICK**. Next is Kaye Braaten from Barney, ND, Council for Agricultural Research, Extension and Teaching.

Welcome to the committee, Ms. Braaten.

Ms. **BRAATEN**. Thank you.

Mr. Chairman and members of the committee, my name is Kaye Braaten, and I am from North Dakota and a member of the Council of Agricultural Research, Extension and Teaching, more commonly known as CARET.

CARET is an organization that is made up nationally of voluntary leaders, and they are vitally interested in the agricultural sciences and education. The CARET organization is also associated with the National Association of State Universities and Land Grant Colleges.

I want to thank you, Senator, for giving us this opportunity to come before you this afternoon to express our interest in these issues.

Being from North Dakota, Senator, I know that you are aware that the agricultural community has undergone a basic transformation over the past several years, and our capacity to remain competitive in the world economy has been greatly challenged, not only in agriculture but in other areas of our Nation's industry and commerce.

As a nation we have a tremendous stake in overcoming our current problems in world competition, and we firmly believe, as our competing nations believe, that new technology is the way to reinforce our strength in the world economy.

American agriculture and forestry produce about 24 percent of the total exported products of this Nation and contribute in large measure to our balance of payments.

Today I would like to address just two of the issues that we are vitally concerned with in the budget. One is the water quality issue.

I know that, being from my part of the world, you are very much aware of some of the difficulties we have in my particular county, Richland County, ND, where both the cities of Ledgerwood and Winemeer are faced with problems with arsenic in their water, and we have a lot of farmers out there who are concerned with the balance that should be created in providing our agricultural products and the use of herbicides.

The Land Grant Colleges have developed a national plan to address the water quality and water quantity needs for the businesses and families in all of the counties of the United States.

The goals of this national plan closely match the water quality guidelines of the Joint Council on Food and Agricultural Sciences, which has named water quality as its highest priority for fiscal year 1989.

This also holds true back home in North Dakota with our consultation board and NDSU. And I also notice, as a county commissioner, that a lot of the information that I get from all of the States across this Nation indicate that they are also considering water quality as one of the important issues facing their States.

As you will notice in the testimony, there are six items that are listed on why this national plan of action is good for the country. What we are asking for is a funding request of $25 million in CSRS for water quality research and $15 million in extension for water quality education.

The other issue that we are vitally concerned about is the education and getting more young people involved in studying agricultural issues. This Nation's Land Grant institutions must increase their efforts to recruit and retain outstanding students in our food and agricultural sciences.

In the past, this Nation was able to rely on its wealth of new scientific knowledge and its adaptation on farms and ranches to enable us to compete successfully in world markets. Today we observe countries around the world increasing their research and education investments in agricultural sciences and applying new technology as rapidly as possible. This has produced an international economic competitiveness which has become a widespread national concern, of which you are very much aware.

We must make serious efforts to help our students think creatively about American agriculture. Expanded investments to attract high-quality students and to revitalize instructional programs is imperative to our future.

The U.S. Department of Agricultural Competitive Graduate Fellowship Program has had remarkable success in attracting scholars, with increasing opportunities for women and minorities, and should be expanded.

A Competitive Challenge Grants Program which is both a public and private-sponsored partnership will stimulate excellence in the undergraduate levels, foster additional regional programs, and increase the quality of faculty, and upgrade outmoded laboratory instruments.

In conclusion, Mr. Chairman, we firmly believe that this budget document presented to this committee sets the stage for more innovative approaches to complex problems, and that Land Grant College coordinated team efforts will ensure common national goals to give cost effectiveness and efficient methods top priority in the use of public funds to build a better competitive position for U.S. agriculture.

We have been encouraged by these efforts to help maintain a profitable, competitive agriculture while protecting our environment, conserving our valuable natural resources, and maintaining a vital rural America.

The CARET organization fully recognizes that NASULGC's budget is an investment that needs the support of Congress to ensure the future of American agriculture.

We would sincerely urge that this committee carefully review the budget requests of NASULGC.

Just in closing, Mr. Chairman, I would like to mention an article that was in the Sunday Fargo Forum. It concerned a young man from Stanley, ND, who received one of the RJR Nabisco grants. He is going to be able to attend NDSU on a full scholarship studying agricultural economics.

One of the things that I discovered in checking some of this out was that there were 1,000 applicants for these grants, and there were 350 finalists. Because of the money, only 25 of these were awarded, and 23 of the young people have accepted these grants. It seems rather sad to me that we have 325 people who are vitally interested in studying agricultural issues in college who are going without these funds.

I appreciate the opportunity to come here before you, and I thank you for that. I will answer any questions or get you any information that you would request.

Senator **Burdick**. Well, I would like to put that article in the file, if you don't mind.

Ms. **Braaten**. I would love to give it to you.

Senator **Burdick**. Fine.

Ms. **Braaten**. Thank you.

Senator **Burdick**. Based on recent surveys and in the testimony at hearings before Congress, water quality and management are not regarded as priority research areas. Are you aware of current USDA activities in water quality and management? Do you regard these as insufficient, or sufficient?

Ms. **Braaten**. I think, in answer to your first question, there are a lot of areas where water quality is being addressed. However, it is such an enormous problem that without the research and developing some sort of balance, I think we are going to be in a great deal of trouble.

Senator **Burdick**. Do you think this water quality and management research project is sufficiently important that tradeoffs in other areas of research should be made?

Ms. **Braaten**. Mr. Chairman, as you well know, I have been a county commissioner for a number of years. I know better than to tell you how to manage your budget, and I know that when you look at this you will consider the urgency of the study and do the very best that you can. I appreciate that, and I have over the years appreciated your support of agriculture.

Senator **Burdick**. We will do our best.

Ms. **Braaten**. Thank you.

Senator **Burdick**. Thank you.

[The statement and article follow:]

## STATEMENT OF KAYE BRAATEN

Mr. Chairman and Members of the Committee, my name is Kaye Braaten, a member of the Council for Agricultural Reserach, Extension and Teaching, more commonly known as "CARET".

CARET is a national organization of volunteer leaders from every state in the nation who are vitally concerned with agricultural sciences and education. Our CARET organization is closely associated with the National Association of State Universities and Land-Grant Colleges (NASULGC).

We are most grateful to you, Mr. Chairman, for providing the time and opportunity for us to appear before the subcommittee to present the views of the CARET organization, which has a vital interest in these programs.

Congress has enhanced agriculture in the past through its passage of the Morrill Act, Hatch Act and Smith-Lever Act, two of which had milestone anniversaries in the past year with the Smith-Lever Act celebrating its 75th anniversary next year. All of these congressional acts have markedly demonstrated striking symbols of partnership - the building and merging of institutions, government and education for the good of people. They have become woven into the fabric of American society because they hold strategic places as essential components of a real national security. In fact, the experience has indicated a real foundation for the strength of the national economic base.

The Agricultural Community has undergone a basic transformation over the past several years. Our capacity to remain competitive in a world economy has been greatly challenged, not only in agriculture, but in other areas of our nation's industry and commerce.

The essentials of our national strength in scientific capacity, including facilities, instrumentation, and expertise are not issues that receive popular support. We are well aware of the immediate problems and forces directed at budget deficits, trade imbalances, and financial stress of various sectors which overwhelm our political process and preclude adequate consideration of long term solutions for our research and development system.

The forces of instability on Agriculture have increased the demands on our research and education programs at a time when constraints of federal and state funding have seriously limited their capacity to respond. These financial constraints in the past several years have eliminated less effective programs, produced more effective efforts to meet current problems but at the same time it seems rather arbitrary to cut our research and extension programs when we are trying hard to remain competitive in a world that is dependent on new technology and its applications.

As a nation we have a tremendous stake in overcoming our current problems in world competition and we firmly believe, as our competing nations believe, that new technology is the only way to reinforce our strength in the world economy. American agriculture and forestry produce about 24 per cent of the total exported products of this nation and contribute in large measure to our balance of payments. With improvements in our technologies our farmers will be able to compete in global markets.

## Water Quality and Management

Water Quality and Management has become an urgent concern for the communities served by America's Land-Grant Colleges.

The Land-Grant Colleges have developed a national plan to address the water quality and quantity needs for the businesses and families in all counties of the United States. The goals of the national plan closely match the water quality guidelines of the Joint Council on Food and Agricultural Sciences which has named water quality as its highest priority for FY 1989.

This national plan of action is good for the country because of the following:

1. It relys on knowledge and education to protect our water quality.

2. It reaches into every county of our nation and shows people positive and practical solutions for site specific problems and circumstances.

3. It encourages and maintains local controls.

4. It builds on existing institutions instead of creating costly and burdensome bureaucracies.

5. It involves cooperation with the federal, state and local agencies.

6. Most of the funding for this plan is from state and local sources.

The funding request is for $25 million is CSRS for water quality research and $15 million in extension for water quality education.

## Future Economic Performance of American Agriculture Will be Determined by the Training of Our Youth

This nation's land-grant institutions must increase their efforts to recruit and retain outstanding students in our food and agricultural sciences. Unless this happens in short order, we as a nation will face a critical shortage of skilled men and women and further weakening of our already weak position in global markets. In the past, this nation was able to rely on its wealth of new scientific knowledge and its adaption on farms and ranches to enable us to compete successfully in world markets.

Today, we observe countries around the world increasing their research and education investments in Agricultural sciences and applying new technology as rapidly as possible. This has produced an international economic competitiveness which has become a widespread national concern.

It is crucial and most essential that we preserve our ability to lead the world in developing trained personnel. The world witnesses large swings in exchange rates and large flows of capital in and out of our country which have created significant shocks to our economy and a great deal of instability.

These problems strongly suggest need for rapid adjustments to the changing economic forces from abroad. The implications for the agricultural sciences and educational systems are challenging and provocative and we must increase our support for these efforts.

We must make serious efforts to help our students think creatively about American agriculture. To address these issues and to adequately manage our future investments and to meet these challenges.

Expanded investments to attract high-quality students and to revitalize instructional programs is imperative to our future. The U. S. Department of Agriculture Competitive Graduate Fellowship Program has had remarkable success in attracting scholars with increasing opportunities for women and minorities and should be expanded. A Competitive Challenge Grants Program which is both a public and private sponsored partnership will stimulate excellence in the undergraduate levels, foster additional regional programs and increase the quality of faculty and upgrade outmoded laboratory instruments. We fully support and encourage this committee to find ways to include the amounts requested by NASULGC for this national investment in our future.

## Conclusion

The Fiscal 1989 Budget Committee on NASULGC's Division of Agriculture followed a comprehensive, well coordinated planning process to address regional and national needs in food, agriculture and natural resources. We firmly believe that this budget document presented to this committee sets the stage for more innovative approaches to complex problems and that land-grant college coordinated team efforts will ensure common national goals. We are gratified by the new national initiatives and other special programs that are included to give cost effectiveness and efficient methods top priority in the use of public funds to build a better competitive position for U.S. agriculture.

We have been encouraged by these efforts to help maintain a profitable, competitive agriculture, while protecting our environment, conserving our valuable natural resources and maintaining a vital rural America.

The CARET organization fully recognizes that NASULGC's budget is an investment that needs the support of Congress to insure the future of American agriculture. We sincerely urge that this committee carefully review the budget requests of NASULGC. The CARET organization stands ready to work wiith you and the Congress to achieve our mutual goals in agricultural sciences and education.

Mr. Chairman, this concludes my prepared remarks. I will be pleased to answer any questions or provide further information as you may desire.

## TABLE I: FUNDING AUTHORITIES
(Thousands of dollars)

| | FISCAL 1988 | FISCAL 1989 | |
|---|---|---|---|
| | | Executive Request | NASULGC Recommendations |
| **Research** | | | |
| Hatch Act | $155,545 | $155,545 | $168,922 |
| McIntire-Stennis Act | 17,500 | 12,975 | 25,000 |
| Evans-Allen Program | 23,333 | 25,333 | 25,333 |
| Animal Health (Section 1433) | 5,476 | -0- | 5,947 |
| Research Grants (P.L. 89-106) | | | |
| Competitive Grants (Sec. 2b) * | 42,372 | 54,500 | 54,500 |
| Special Grants (Sec. 2c) * | 31,185 | 4,977 | 63,935 |
| Rangeland (P.L. 95-113) | 475 | -0- | 475 |
| Critical Materials (P.L. 98-284) | 4,918 | 668 | 668 |
| Aquaculture Centers (P.L. 95-113) | 3,500 | -0- | 3,500 |
| Agric. Productivity (P.L. 99-198) | 3,900 | -0- | 3,900 |
| Supp. & Alt. Crops (P.L. 95-113) | 675 | 391 | 391 |
| Federal Administration | 4,094 | 1,100 | 1,100 |
| Total Research | $292,973 | $255,489 | $353,671 |
| **Extension** | | | |
| Smith-Lever | | | |
| Formula | $241,594 | $228,483 | $252,000 |
| Special Programs * | 77,458 | 46,691 | 147,676 |
| D.C. Extension | 935 | 970 | 1,000 |
| Evans-Allen Program | 18,291 | 18,291 | 23,000 |
| 1890 Facilities | 9,508 | -0- | 10,000 |
| Renewable Resources Extension | 2,765 | -0- | 6,000 |
| Federal Administration | 7,412 | 5,107 | 5,900 |
| Total Extension | $357,963 | $299,542 | $445,576 |
| **Higher Education** | | | |
| Graduate Training Grants | $ 2,852 | $ -0- | $ 10,000 |
| 1890 Strengthening Grants | 1,902 | 2,000 | 2,000 |
| Challenge Grants | -- | -- | 10,000 |
| Total Higher Education | $ 4,754 | $ 2,000 | $ 22,000 |

* See Table II for details

## TABLE II: GRANTS AND SPECIAL PROGRAMS
(Thousands of dollars)

| | FISCAL 1988 | FISCAL 1989 | |
|---|---|---|---|
| | | Executive Request | NASULGC Recommendations |
| **Research Grants P.L. 89-106** | | | |
| **Competitive Grants (Sec. 2b)** | | | |
| Biotechnology | $ 19,016 | $ 21,616 | $ 21,616 |
| Plant Sciences | 12,126 | 12,126 | 12,126 |
| Animal Sciences | 6,000 | 7,000 | 7,000 |
| Pest Science | 2,853 | -0- | -0- |
| Human Nutrition | 2,377 | 3,000 | 3,000 |
| Stratospheric Ozone | -- | 7,400 | 7,400 |
| Plant Science Centers | -- | 3,358 | 3,358 |
| Subtotal | $ 42,372 | $ 54,500 | $ 54,500 |
| **Special Grants (Sec. 2c)** | | | |
| CONTINUING NATIONAL RESEARCH PROGRAMS | | | |
| Integrated Pest Management | $ 2,940 | $ -0- | $ 2,940 |
| Minor Use Pesticide Clearance | 1,369 | 1,369 | 1,369 |
| Minor Use Animal Drugs | 229 | 229 | 229 |
| Pesticide Impact Assessment | 1,968 | 2,468 | 2,468 |
| Rural Development Centers | 475 | -0- | 475 |
| Animal Health (Sec. 1414) | 5,705 | -0- | 5,705 |
| Aquaculture Research General | 660 | -0- | 660 |
| Tropical and Subtropical | 3,091 | -0- | 3,091 |
| Acid Precipitation | 661 | 661 | 661 |
| Biological Impact Assessment | -- | 250 | 250 |
| NEW NATIONAL RESEARCH INITIATIVES | | | |
| Water Quality | -- | -- | 25,000 |
| Family Well-Being | -- | -- | 2,000 |
| Food Safety | -- | -- | 5,000 |
| SPECIAL PROBLEM GRANTS * | 14,087 | -0- | 14,087 |
| Subtotal | $ 31,185 | $ 4,977 | $ 63,935 |
| Total Research Grants & Special Programs | $ 73,557 | $ 59,477 | $118,435 |

* Numerous special problem grants are established to address acute situations in specific states.

TABLE II: GRANTS AND SPECIAL PROGRAMS (Continued)
(Thousands of dollars)

| | FISCAL 1988 | FISCAL 1989 | |
|---|---|---|---|
| | | Executive Request | NASULGC Recommendations |
| **Extension Special Programs** | | | |
| NATIONAL INITIATIVES | | | |
| **Water Quality & Management** | $ -- | $ -- | $ 15,000 |
| **Nutrition, Health & Food Safety Education Program** | | | |
| EFNED | 58,635 | 22,111 | 60,000 |
| Improving Nutrition, Diet & Health | -- | -- | 7,500 |
| Food Safety Education | -- | -- | 5,000 |
| **Competitiveness & Profitability of Agriculture** | -- | 10,000 | 15,000 |
| **Revitalizing Rural America** | -- | 2,000 | 10,000 |
| Rural Development Centers | 903 | -0- | 900 |
| **Alternative Agricultural Opportunities** | -- | -- | 5,000 |
| **National Priority Initiatives (Competitive Grants)** | -- | 10,000 | 10,000 |
| Subtotal | $ 59,538 | $ 44,111 | $128,400 |
| OTHER SPECIAL PROGRAMS | | | |
| **Integrated Pest Management** | $ 7,164 | $ -0- | $ 7,500 |
| **Pesticide Impact Assessment** | 1,633 | 2,580 | 2,580 |
| **Financial Management** | 1,427 | -0- | 1,500 |
| **Urban Gardening** | 3,329 | -0- | 3,329 |
| **Farm Safety** | 970 | -0- | 970 |
| **Counseling (Sec. 1440)** | 3,350 | -0- | 3,350 |
| **IRM** | 47 | -0- | 47 |
| Subtotal | $ 17,920 | $ 2,580 | $ 19,276 |
| TOTAL | $ 77,458 | $ 46,691 | $147,676 |

## STUDENT PASSED EXAMS, NOT FOOTBALLS

By Jim Neumann

[From the Forum, Apr. 24, 1988]

When Shane Goettle goes to college next year, someone else will foot the bill.

The 18-year-old Stanley, N.D., High School senior will attend North Dakota State University on a full scholarship.

But in an age when college athletics command the attention — and the cash — Goettle made his scholarship money the old fashioned way: He earned it by passing examinations, not footballs.

Goettle is one of just 20 recipients from across the nation of a new, full-ride scholarship offered by RJR Nabisco.

The scholarship, along with matching funds from NDSU, will provide up to $6,000 in each of the next four years to pay for Goettle's tuition, fees, books, and room and board.

"He'll never get a bill from the university. ...He just walks on campus and, four years later, he walks off," said NDSU Associate Dean of Agriculture Ross Wilkinson, who will administer the scholarship money. "It's a heck of a deal — and he doesn't have to play sports, either."

For Goettle, whose family runs a sheep and cattle operation near Donnybrook, N.D., there was never a question about attending college. But the money will make an education easier, he said.

"I would have done anything I could to get to college," he said. "I'd always planned to study agriculture. This scholarship reaffirmed that."

The scholarship program was developed by RJR Nabisco to encourage students to study life sciences and agriculture. It is the first full scholarship specifically for undergraduate students in agriculture, Wilkinson said. The program is available to first-year students planning to attend any of the schools in the National Association of State Universities and Land Grant Colleges, provided the school agrees to provide some matching scholarship money.

The qualifications to be considered for the scholarship were not easy ones, Wilkinson noted.

Students had to have a composite score on the pre-college ACT test of 28 or more. They had to have a demonstrated interest and ability in agriculture and life sciences. Leadership qualities also were considered, Wilkinson said.

Though between 50 and 60 students applied for the program from North Dakota alone, Goettle said he thought he had a chance at the scholarship.

He easily met the ACT test qualification with a 32 composite, a score that placed him in the 99th percentile of students taking the test. He ranks first in his class of 53 and is a four-year honor-roll student.

Outside of the classroom, he has been active in 4H and FFA, where he has won numerous awards. He was a wrestler, played football and acted as student manager, was a member of the speech team, played in the band and served as a class officer and member of the student council.

"I had a good record in what they were looking for ..." he said. "My experience was above what I saw most of my peers having."

Because of his high ACT score, NDSU already had awarded him a $1,000 Loftsgard Scholarship before he won the Nabisco scholarship. In fact, his academic scholarship offers have been so generous, they represent a liability under new federal tax laws, which tax scholarship money given for room and board fees.

The Nabisco scholarship program comes at a time when agribusiness leaders and academicians are trying to convince students "that there is a lot of life throughout the (agribusiness) industry," Wilkinson said.

"Agriculture in general has been trying to instill, obviously, a renewed interest in agriculture," he said. "This is where you should begin; you should begin to cultivate this interest at an early age."

Goettle plans to study agricultural economics at NDSU, an area of agriculture that probably offers the most job possibilities today, according to Wilkinson.

Goettle has a herd of about 40 sheep he developed as a 4H and FFA project, and he wants to keep an interest in the family farm with the idea he might someday return.

"That's an option I am considering," he said.

But after college, Goettle wants to utilize his education in another aspect of agriculture.

"I'd like to get out and work a little bit for the ag industry," he said.

Goettle's scholarship is an honor he can be proud of, Wilkinson said. But NDSU officials also think the award could be a boost for NDSU and agribusiness in general.

"When you have one scholarship, you would hope others would see this and say, 'this is a good field, a good career choice,'" Wilkinson said.

## AMERICAN FORESTRY ASSOCIATION

### STATEMENT OF NEIL SAMPSON, EXECUTIVE VICE PRESIDENT

Senator BURDICK. Our next witness will be Neil Sampson, executive vice president of the American Forestry Association.

Mr. SAMPSON. Thank you, Mr. Chairman.

I am Neil Sampson of the American Forestry Association. My statement has been submitted, and I will briefly cover some of the high points.

We are concerned largely with the natural resource and conservation programs of the Department. In the statement you have before you we have recommended that the traditional Soil Conservation Service programs be continued at current levels, some $683.9 million.

In addition, we commend the Congress for providing additional funding to help the SCS through the workload created by the 1985 farm bill and urge you to continue to do that in this coming year. That cost has been estimated, we understand, at around $30 million.

For the Extension Service, Mr. Chairman, we are deeply supportive of the Renewable Resources Extension Act, and the RREA funding that has gone into Extension has shown a remarkable ability to leverage contributions of State and local governments as well.

For every position that has been bought by Federal money, three have been provided by State and local. We urge that you expand that program to a truly balanced national program, as has been recommended by the Land Grant Universities and the Extension Service.

We believe the Agricultural Conservation Program is justified at the current level and in fact could be justified to be restored to the $190 million level that has been its past history.

As foresters, we couldn't pass up the chance to ask you to fund the Forestry Incentive Program, the FIP, again at a minimum of $11.9 million.

Finally, the last issue that we have addressed in our statement concerns a little pest called the gypsy moth, which is in everybody's news—TV, radio, and newspapers—these days, as communities in this area try to figure out what to do with it. That little pest is headed west, and it is headed west pretty fast. It is going to cost millions and millions of dollars in economic damage to the hardwood forests of this country.

Right now the funding through APHIS, Animal and Plant Health and Information Service, has been cut off, and those people have the money and the manpower and the authority to do this job. We have urged in our statement that you restore $1.1 million to APHIS so that they can continue to eradicate those isolated gypsy moth infestations.

With that, Mr. Chairman, I would close this summary by just thanking this committee for its hard work over the years in supporting the resource and conservation programs of the Department. We are fully aware of why they are where they are in the face of repeated attempts from downtown to cut them. We appreciate this committee, and we will support you any way we can in your efforts to do that again.

Senator BURDICK. Thank you.

For the past few years since the farm bill was enacted, the President's budget has consistently recommended elimination of SCS traditional conservation programs as a tradeoff against CRP. Why does the American Forestry Association think this is a bad idea? What would be the result of such a proposal if accepted by the Congress?

Mr. SAMPSON. Mr. Chairman, we are aware that the farm bill has caused a tremendous amount of additional work, but we think that that is setting the stage for a whole new relationship between the U.S. Government and the farmers and ranchers and foresters of America.

To cut those traditional programs at this time and to move all of that effort into that farm bill would, we think, strip out the capacity that it has taken us 50 years to build in rural America which is going to be needed for years and decades to come as we enter into the new relationship that American agriculture is going to have in light of the farm bill activities.

We wouldn't have wanted to have cut out the traditional programs when we went through the soil bank furor 30 years ago, and I don't think we would want to cut it out any more today.

Senator BURDICK. Your statement suggests eradication of the gypsy moth. What level of funding for APHIS would you recommend for this project?

Mr. **Sampson**. Well, we have recommended $1.1 million, which is fairly small, because it is only in these spots. The only place you can eradicate this thing is in very small spots, where it gets out ahead of the general population. But those spot eradications can do a great deal to prevent that spread from happening.

Now, there are other strategies, and there is a great deal of research going on how to contain this thing. It is not an easy one, and we are not going to eradicate it; we are simply going to have to contain it and manage it. But when it hitches a ride on somebody's travel trailer and ends up 500 or 1,000 miles ahead of where it would have gone otherwise, moving in and eradicating that small spot is very, very important in slowing the spread of this pest.

Senator **Burdick**. Senator, here are your tools.

Senator **Cochran**. I don't have any other questions of the witness.

Mr. Sampson, we appreciate your being here and providing us with your observations and suggestions about our appropriation for the American Forestry Association and its members.

Mr. **Sampson**. Thanks, Senator.

Senator **Cochran**. Thank you very much.

[The statement follows:]

## STATEMENT OF R. NEIL SAMPSON

**SUMMARY: The American Forestry Association supports maintaining the vital soil and water resource management programs of the Soil Conservation Service, and the Forestry Incentives Program and the Agricultural Conservation Program of the ASCS — at current service funding levels. We support expansion of SCS's capacity to implement the conservation provisions of the 1985 Farm Bill while maintaining traditional conservation operations. AFA also recommends the expansion of the Renewable Resources Extension Act program of the Extension Service to the $6 million level. Finally, we support restored APHIS funding for the eradication of isolated gypsy moth infestations.**

The American Forestry Association, the national citizen's organization for trees, forests, and forestry, is deeply distressed by the proposed reductions to the U.S. Department of Agriculture's conservation budget for FY 1989. We come before you today to demonstrate our continued appreciation and support for the important conservation programs which this Subcommittee has so effectively championed. We believe that we would be foolish to trade away the nation's proven, traditional soil and water conservation programs -- which have for years provided the backbone of our conservation efforts -- for the new soil conserving programs being implemented under the 1985 Farm Bill.

And that is why we recommend that SCS's traditional programs -- including technical assistance, soil surveys, watershed protection, Plant Materials Centers, Resource Conservation and Development, and others -- be funded at a current services budget level of $683.9 million in FY 1989. Additional funds will also be necessary to meet the added program demands of the 1985 Farm Bill. The National Association of Conservation Districts has estimated this additional funding requirement to be in the range of $30 million, and we support their recommendation.

The President's budget labels as "non-essential" programs which have effectively developed and protected the productivity of our agricultural and natural resources — the very resources that have helped this nation assume its position as a world leader. These recommendations demonstrate not only the Administration's continued lack of commitment to the ongoing fight to protect soil and water resources, but also a basic ignorance of the fundamental relationship between our food and fiber production capabilities and national stability. The Administration's budget would damage both resource stability and productivity in years to come.

Soil erosion, for example, is as serious in many respects today as it was in 1935. In some regions in the breadbasket of the Nation, two acres out of every three are suffering more than tolerable soil loss, according to the 1982 National Resource Inventories. To meet such challenges, Soil Conservation Service technical professionals currently work with conservation district staff and state agency staff to provide technical assistance on more than 60 million acres of land, nationwide. In addition, the conservation provisions of the Farm Bill have created a substantial new workload for technical employees at all levels. SCS has reported that the Conservation Reserve Program, Conservation Compliance, and Swampbuster provisions, for example, will require the development of new soil conservation plans (or the certification of existing plans) on 135 million acres of cropland by 1990.

We must meet these challenges, Mr. Chairman, by continuing to fund traditional conservation programs at current levels, while expanding SCS capacity to implement the Farm Bill. Clearly our forestry, conservation, and agricultural efforts have already done their share of shrinking in these deficit-conscious times. We can not afford to terminate the modest investments that we as a nation have made in our most basic of resources, our soil and water. AFA therefore applauds the work of this Subcommittee to provide additional SCS funds via the Commodity Credit Corporation.

Other Administration budget proposals are notably ill-advised, including the dismantling of the Renewable Natural Resources Extension Act program (RREA).

When RREA was passed in 1978, it enjoyed broad-based support from conservation organizations including wildlife and grazing, as well as forestry interests. This broad based support was reaffirmed during the recent successful campaign to reauthorize this important program, the primary function of which is to encourage the delivery of technical information and advice to nonindustrial landowners. These people are the decision-makers on 58% of the nation's forestland and 64% of our rangeland. Their attitudes and management decisions not only affect the level of natural resource commodity outputs from these lands, but also control the potential of these lands to provide wildlife habitat, soil and water protection, and outdoor recreation opportunities.

RREA encourages educational programs leading to more efficient, environmentally sound management of this vital component of our country's range and forest resource base. Federal support of these natural resource extension efforts serve as a magnet attracting funds from both private and public agencies and organizations for resource education programs. For every state-level natural resource staff position provided by federal funds, state and local funds have generated 3 additional positions. We urge you to establish FY 1989 funding at $6 million, which would support a truly viable, well-balanced program, involving every state in the nation.

The Agricultural Conservation Program has also gone through intensive review and improvement in recent years. It was funded at a level of $190 million in fiscal '85 and '86, but is proposed for elimination in fiscal '89. We believe that funding for this program should be maintained at a minimum of $177 million to cope with some of the very serious economic and conservation problems this country and its farmers are facing. We would also gladly support the expansion of the ACP, as we believe that the farmlands so vital to our future are experiencing levels of erosion and losses of soil fertility that must be controlled in order to protect the continued productivity of these lands.

ACP cost-sharing encourages the installation of erosion control measures which protect both our land and water resources. Our nation as a whole benefits from the prevention of serious topsoil losses and water quality problems; the ACP program is needed to continue the fight for soil and water conservation.

AFA is concerned with the elimination of the Forestry Incentives Program in the President's budget. Arguments are made that the federal government should not be supporting reforestation activities on private lands. That is an activity, supposedly, that should be the responsibility of state and local institutions or the forest products industry's small woodland owner assistance program. Although we strongly support a cooperative approach to encouraging good management and reforestation, we feel that the federal government has an important part to play in this area. State and local agency budgets and the forest products industry cannot handle the job alone. We therefore support the continuation of this program at the current funding level of $11.9 million, at a minimum.

Finally, AFA would like to comment upon the coordinated effort to control the spread of the gypsy moth. As you are aware, the gypsy moth poses an increasing threat to the hardwood trees in our nation's forests, parks, and urban communities. While we applaud the current efforts of the Animal and Plant Inspection Service (APHIS) to limit spread of the moth and the actions of the Forest Service to assist in control of established populations, we would suggest two improvements to the current effort. First, AFA supports the restoration of APHIS funding for the eradication of isolated gypsy moth infestations. Recently, the agency has not received appropriated monies for this effort -- although the activity falls squarely within the agency's jurisdiction -- and the Forest Service has been obliged to fund the eradication program with Forest Service monies originally earmarked for other purposes. We believe that APHIS is the logical and appropriate agency to take the lead on the control of isolated infestations of the moth, and we encourage this Subcommittee to provide APHIS with adequate funding to meet its responsibilities with regard to controlling the spread of the gypsy moth.

Second, AFA believes that a serious effort should be undertaken to test the feasibility of preventing the natural spread of the gypsy moth through containment. We are aware of the outstanding success of the boll weevil program in southeastern states and, while we recognize that the gypsy moth is different, we encourage the USDA to carefully examine the wide range of options available for controlling or managing the moth and its damaging environmental effects.

We appreciate this chance to express our views.

## AMERICAN VETERINARY MEDICAL ASSOCIATION

### STATEMENT OF DR. JOHN BOWEN, DIRECTOR, VETERINARY MEDICAL RESEARCH, COLLEGE OF VETERINARY MEDICINE, UNIVERSITY OF GEORGIA, ASSOCIATION OF AMERICAN VETERINARY MEDICAL COLLEGES

Senator COCHRAN. Our next witness is Dr. John Bowen, who is director of veterinary medical research, College of Veterinary Medicine at the University of Georgia. He is here representing the Association of American Veterinary Medical Colleges and the American Veterinary Medical Association.

Welcome, Dr. Bowen. I know you realize that we are under some time constraints. They have allocated 10 minutes per witness; so, if you could stay within those limits, we would appreciate it.

Dr. BOWEN. Thank you very much. We appreciate the opportunity to meet before the subcommittee to discuss the American Veterinary Medical Association and the Association of American Veterinary Medical Colleges for fiscal year 1989 budget recommendations for the Department of Agriculture and Related Agencies.

Our principal concern is the health of animals and the contribution which animals make to the health and welfare of the American people.

Animal disease continues to be a major cost of livestock production and a major contributor to the problems of food safety for the American consumer.

These disease problems have a significant impact on the economic health of American agriculture in both the domestic and international markets.

For the individual livestock producer, disease often represents the difference between remaining in or being forced out of the livestock business.

My Dad is an example of a cattleman who suffered severe financial losses from brucellosis on the family cattle farm in south Georgia in 1952. Unfortunately, the resources for research on this type of disease are still not adequate.

In addition to its effect on the farm profitability, the cost of the disease is ultimately passed on to the consumer.

With regard to the Animal Health and Disease Section 1433 Program, we wish to point out that the National Academy of Science report on Animal Health in American Agriculture gave unanimous support of this program and for its incorporation into the base USDA budget, as is true for Hatch funds.

Although the companion animal health research—not now a part of the agriculture appropriation process nor any Federal appropriation process—it is interesting to note that pet food sales exceeded $5.1 billion this past year.

In the Special Grants Program, less than 15 percent of the proposals are funded, although many more are worthy of funding. We are concerned about the low dollar amount of funding for this program and also about the provision of capping individual awards at $150,000.

When spread over 3 years, and deducting indirect costs, this maximum level of funding is inadequate. Both the maximum grant level and the level of funding in this program should be increased.

The average NIH grant is $189,320 per year, including indirect costs. For a 3-year grant, the total would be in excess of half a million dollars. We expect the same quality of science from the animal health researcher as we expect from the human health researcher, but we expect the former to do this at a much lower cost and with fewer resources.

The American public views food safety as one of its most important concerns. The livestock industry and veterinarians believe the most effective approach is research aimed at the reduction of animal disease and the delivery of a pathogen-free and residue-free animal or animal product to the food processing plant.

We believe that this research can most appropriately be carried out through the competitive grants mechanism currently used by USDA. We recommend that $20 million be authorized for this research in fiscal year 1989, and that the programs should expand over the next several years.

The proposed level of funding is based on support of 80 grants of $250,000 each for animal origin problems. Inclusion of other agricultural products and seafood would require additional support.

On behalf of the American Veterinary Medical Association and the Association of Veterinary Medical Colleges, I want to express our gratitude for the opportunity to present our position here today.

Senator COCHRAN. How would you compare your request to the administration's budget request? How many more million are you requesting in your recommendations?

Dr. BOWEN. Well, the Section 1433 Program has routinely been zeroed out by the administration, and we are requesting $12 million in this program in the 1989 budget.

In the Special Grants Program, again, that has been zeroed out, and we would like to request $12 million in that program.

For other programs, just to look at the Competitive Grants Program, the Electrical Biology Program, we would like to see that raised to $25 million, and the Animal Veterinary Science Program raised to $10 million.

Senator COCHRAN. We are trying to figure out how to assess the recommendation that you are making with the provisions of the budget allocation that we are going to have to work with, and whether or not we will be able to do all of the things you recommend.

The biotechnology area is a big item in your recommendation. I see in your listing of priorities you are requesting $25 million for competitive grants in the biotechnology area. What type of research and what type of products do you envision that funding would support in this area?

Dr. BOWEN. Well, we envision certainly a high level of basic biotechnology research to be involved here. But one of the areas that I think is a very good example is sub-unit vaccines, which can be developed through new biotechnology techniques.

One of the great advantages of these: Not only are there effective vaccines; but, in situations where you need to know whether this animal has been naturally infected or has been vaccinated for the disease, you are able to include genetic markers in these to make that distinction. So we put a lot of emphasis on that particular area.

Senator COCHRAN. Well, your testimony is very helpful to us in trying to identify what the important concerns are in the area of animal health and disease research, and we appreciate your taking the time to provide us with this information and these suggestions. We will carefully review them as a part of our process in determining the level of funding that should be given to these activities.

Thank you for being here.

Dr. BOWEN. Thank you very much.

[The statement follows:]

## STATEMENT OF DR. JOHN M. BOWEN

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to present the American Veterinary Medical Association (AVMA) and the Association of American Veterinary Medical Colleges (AAVMC) FY 1989 budget recommendations for the Department of Agriculture and related agencies.

The AVMA is the national organization which represents a membership of over 46,000 U.S. veterinarians and the AAVMC represents the 27 U.S. colleges of veterinary medicine. Our principal concern is the health of animals and the contributions which animals make to the health and welfare of the American people. Animal disease continues to be a major cost of livestock production and a major contributor to the problems of food safety for the American consumer. These disease problems have significant impact on the economic health of American agriculture in both domestic and international markets.

### SUMMARY RECOMMENDATIONS

Our specific recommendations for programs under the jurisdiction of the Department of Agriculture are:

| | |
|---|---|
| Cooperative States Research Service | |
| o Hatch Act total funds | $ 168,922,000 |
| o Animal Health (Section 1433) | 12,000,000 |
| o Animal Health (Special Grants) | 12,000,000 |
| o Minor-Use Animal Drugs (Special Grants) | 229.000 |
| o Biotechnology (Competitive Grants) | 25,000,000 |
| o Higher Education | 20,000,000 |
| o New Research in Food Safety and Animal Health (Competitive Grants) | 20,000,000 |
| Animal and Plant Health Inspection Service | |
| o Animal Welfare Act | 10.000,000 |
| Food Safety and Inspection Service | 405.700,000 |

With the exception of the Food Safety and Inspection Service and Minor Use Animal Drugs these recommended levels are well above those requested in the Administration's budget.

### ANIMAL HEALTH AND DISEASE RESEARCH

Animal disease costs the American livestock industry more than $15 billion each year. Subclinical disease and indirect costs of disease raise the total cost to an estimated $25 billion. For the individual livestock producer, disease often represents the difference between remaining in or being forced out of farming. The cost of disease is ultimately passed on to the consumer, but the consumer and the food processing industry also pay a heavy price in monitoring food products for infectious agents and chemical residues. Many of these food safety issues arise because of overt animal disease and our control efforts.

Hatch Act funds have long provided some support for animal health research. Approximately $9 million or 5 percent of these funds are now spent for research on health and disease in the agricultural experiment stations and schools of veterinary medicine.

The first major federal funding for animal health research, exclusive of that provided for the Agricultural Research Service, was a formula-based fund authorized under Section 1433 of the Food and Agriculture Act of 1977. The establishment of a special grant category for animal health under Section 1414 has also provided some competitive funding of research on animal disease.

The total federal funding of university research directed toward livestock diseases is approximately $21 million. This represents an investment of less than 1/10 of 1 percent of the total cost of livestock disease and less than 2/10 of 1 percent of the direct cost. Total funding of animal disease research from both public and private sources equals approximately $175 million. The federal governments contribution makes up only 12 percent of that total, an amount that is hardly commensurate with the economic importance of a healthy and safe livestock and poultry population. Almost half the gross annual receipts from agriculture, about $70 billion, are derived from the sale of livestock and associated livestock-derived products. This total does not include marketing and processing revenues. A reasonable research effort would be no less than 5 percent of the direct cost of disease or approximately 1 percent of the annual gross receipts. For other research endeavors, either private or public, this hypothetical investment of $750 million each year still would not be considered a serious commitment.

Our recommendation of $12 million in Section 1433 and $12 million in Section 1414 for animal health and disease research doubles the dollars appropriated for this purpose in FY 1988. Although this sum is inadequate to carry out all necessary research, the current budget climate mandates extreme frugality. Therefore we have limited our requests to only the highest priority areas.

Disease remains the single most important loss to the livestock industry and the most important limit to increased productivity and profitability. More animal disease research is a critical need.

Minor Use Animal Drugs

The $229,000 recommended by the Administration for research in minor use animal drugs is the minimum needed to continue development in this area. Presently we have few FDA-approved drugs for use in minor species (sheep, goats, catfish, etc.) of food producing animals. The exorbitant costs of drug development and the process of approval prevent animal pharmaceutical manufactures from developing applications for minor species. The coordinated approach used in the Minor Use Animal Drug program involves producers, the animal drug industry, federal agencies and the research community. This approach is working to alleviate this unfortunate situation. This important progress must continue.

## Biotechnology

Biotechnology research is the critical basic research that is leading to the new biology of tomorrow. It is the major factor which will increase agricultural productivity and keep us competitive in world markets. In the animal area it will lead to significant improvements in animal health and lead to new diagnostic tests, treatments and more effective prevention of animal diseases.

The $25 million recommended will allow some expansion of this research effort; however, it falls far short of the need to more rapidly develop the potential of biotechnology.

## Higher Education

One of the most pressing problems for American agriculture is the development of a new generation of scientists. Competition from other disciplines drains the potential pool of agricultural and veterinary medical scientists. Many of our human resources are quickly approaching retirement or in need of further training. The demographics of the next 10 years will increase this problem. Expanding opportunities for graduate education is one of the highest priorities for American agriculture. We support NASULGC in their recommendations for expansion of the graduate fellowship program to $10 million and the initiation of a new program of "Challenge Grants" for the development of a better prepared pool of potential graduate students. It is the view of the veterinary medical colleges that no less than $4.5 million is urgently needed for a competitive graduate fellowship program in veterinary science alone.

## Food Safety and Animal Health Research

The American public views food safety as one of its most important concerns. Hearings in both the House and Senate this year have clarified the issue and lent strong support to immediately undertaking major research in this area. The view of the livestock industry and veterinarians is that the most effective approach is research aimed at the reduction of animal disease and the delivery of a pathogen-free and residue-free animal or animal product to the food processing plant. The second step is protecting the purity of the product through processing and the third step is proper handling in the distribution of the product.

We believe that this research can most appropriately be carried out through the competitive grants mechanism currently used by USDA. Based on conservative estimates, we believe that no less than $20 million should be authorized for this research in FY 1989 and that even more funding will be necessary in the following years.

## Animal Welfare in APHIS

The program for enforcement of the Animal Welfare Act will suffer a $1.3 million reduction under the Administration's FY 1989 budget. This almost 20 percent decrease is inconsistent with the responsibilities given to APHIS.

No less than $10 million is essential if APHIS is to carry out its legislated mandate and assure the American public that the welfare of animals is receiving appropriate supervision. We urge this increase so that inspectors are thoroughly trained, the covered facilities are regularly inspected, and APHIS has the administrative support to carry out is responsibilities.

Food Safety and Inspection Service

We strongly support the Administration's request of $405.7 million for FSIS. The increase over FY 1988 funding is essential if FSIS is to continue its core responsibilities and respond to the expanded activities in poultry inspection and increase sampling for microbial and chemical residues.

Conclusion

This concludes our remarks. On behalf of the AVMA and AAVMC I want to express our gratitude for the opportunity to present our position here today. Mr. Chairman and members of the Subcommittee we appreciate the challenges you face in the current budget environment. We trust that you share our recognition of the importance of the programs that we have described for you. We look forward to working with you and offer our assistance in obtaining or providing additional materials should you find that to be helpful.

## NATIONAL GOVERNORS' ASSOCIATION

### STATEMENT OF BARBARA L. FONTANA, STAFF DIRECTOR, COMMITTEE ON AGRICULTURE AND RURAL DEVELOPMENT

Senator COCHRAN. The next witness who is scheduled to appear before our committee is Barbara Fontana, staff director, Committee on Agriculture and Rural Development of the National Governors' Association.

Welcome, Ms. Fontana.

Ms. FONTANA. Thank you, Mr. Chairman.

On behalf of the Nation's Governors, we appreciate the opportunity to come before you today in these public hearings to share with you some concerns we have relative to funding for rural development.

I would like to submit my testimony for the record and briefly summarize it.

The Governors are at this point proposing a new intergovernmental alliance to fund rural development and economic growth. The reason for this new alliance is that clearly we have a very large and strong Federal deficit. We have seen reduced aid and shifts in responsibilities to the States. Local government has a much stronger dependence on State resources now that revenue sharing is gone.

In addition to that, we have industry systemic problems. Internationalization of our global economy has led agriculture and manufacturing and mining to take a decline with the growth in service and high tech. We believe that this situation is going to continue to stress rural areas and rural States.

Governors recognize that the current Federal deficit and uncertain economic climate makes Congress reluctant to initiate major departures from current policy. Therefore, the National Governors'

Association would like to recommend implementing State-administered rural development pilot projects, if a National Rural Development Program is not authorized and funded this session.

Specifically, we would recommend having five State-administered rural development pilot projects—a midwestern farm State, a southern textile or light manufacturing State, and a western natural resource State should be represented among the five.

We believe that appropriating $5 to $8 million per State over 3 years would allow for a reasonable test of rural development concepts which we have been working with State and local officials on over the past few months.

The Nation's Governors recommend that selection of the pilot projects should be determined by the State commitment to operate and fund economic development activities in rural communities.

We have come up with a list of specific project guidelines which would hopefully be used for the pilot projects:

First, the Governors would like to see the Governor designate a lead State agency to administer the program.

We believe that States should commit State resources to this project, and that a permanent State/local consultation commission should be established. The purpose of the commission would be to develop program guidelines and help to target the expenditure of funds.

We support administrative moneys for multipurpose planning bodies and community-based organizations to help local communities plan, apply for funds, and manage local government projects.

We believe that there are two programmatic areas which need to be provided for, and that is, specifically, we believe there is some funding that is needed for business investments for loans and equity financing, so that public funds can leverage private investment in rural businesses, specifically to support startup businesses, expansion, and community infrastructure where it is necessary for employment growth.

The other area that we believe is deserving of additional funds is in the area of business management assistance and technical education for rural community leaders.

Finally, we believe it would be important for such a pilot project concept to have the U.S. Department of Agriculture document and evaluate the performance of States operating these pilot projects and report their findings back to Congress.

I will be happy to answer any questions you have about the Governors' position.

Senator COCHRAN. I think the suggestion that you are making for some demonstration projects for rural development is something the committee ought to seriously consider.

I don't know what the likelihood is of the enactment of legislation that is pending in the Congress for new rural development initiatives. However, there are several of us in the Senate who are sponsoring legislation to develop a regional commission in our part of the country—the Lower Mississippi River Valley Commission—that would look at the special needs and problems that exist in that area of the country and come up with recommendations for improvements in transportation and changes that would help stimulate economic development.

So, maybe our part of the country—Mississippi, Arkansas, Louisiana, Tennessee, and Missouri—could benefit from a rural development initiative such as you are recommending.

Would you see the requirement being reasonable for States that are selected as demonstration sites to come up some matching funds? This is a problem we run into occasionally when we try to get Federal grant money allocated to local units of government or State governments—whether or not the States are going to be able to participate and share in the costs of the project. Do you have any suggestion about that?

Ms. FONTANA. We have indeed talked about that, and the Governors do feel—now, you are not going to, clearly, find all 50 States that are in a position nor have the interest in this particular area, Mr. Chairman, but there are clearly States that are in economic disarray, if you please, that very clearly understand that they must leverage their funds with Federal funds to help local communities grow. And that is a No. 1 priority in many States.

At this point we have 14 to 16 States who have taken a number of initiatives that are getting very serious in this area.

Senator COCHRAN. We appreciate your being here and providing us with these statistics and this information about the need for State-administered rural development pilot projects. I am sure the committee will be interested in reviewing this request very carefully before we complete action on our appropriations bill.

We thank you for coming to testify.

Ms. FONTANA. Thank you, Mr. Chairman.

[The statement follows:]

## STATEMENT OF BARBARA L. FONTANA

I am Barbara Fontana, Committee Director for the National Governors' Association's Committee on Agriculture and Rural Development. I would like to thank you for holding public hearings on agriculture and rural development appropriations for fiscal 1989. The nation's Governors would like me to urge Congress to consider appropriating funds for five demonstration projects that would test reforming intergovernmental assistance to rural businesses.

### Pilot Projects to Test the Redesigned Rural Development Strategy

Governors recognize that the current federal deficit and uncertain economic climate make Congress reluctant to initiate major departures from current policy. The National Governors' Association recommends implementing state-administered rural development pilot projects if a national rural development program is not authorized and funds are not appropriated this session.

Congress should establish five state-administered rural development pilot projects across the country. A Midwestern farm state, a Southern textile or light manufacturing state, and a Western natural resource-based state should be represented in the five selected sites. Governors believe that appropriating between $5 million and $8 million, per state, over three years would allow a reasonable test of the rural development concepts developed by state and local government officials. Selection of pilot project participants should be determined by the state commitment to operate and fund economic development activities in rural communities. The National Governors' Association recognizes that limited federal and state funds must be coordinated in order to stimulate growth in rural economies.

### Pilot Project Guidelines

The National Governors' Association offers the following guidelines for the pilot projects:

- Require that the Governor designate a state agency to administer the program.
- Require states to commit state resources and appoint a permanent state-local consultation commission to bring local officials and the private sector into an alliance. The commission would develop program guidelines and target the expenditure of program funds. Fifty-one percent of the commission membership should be local elected officials from counties, small cities, towns, townships, and multi-purpose planning bodies.
- Provide multi-purpose planning bodies and community-based organizations with administrative monies to plan, apply for funds, and manage local government projects.
- Authorize and appropriate federal funds to support state and local business investment programs. Governors urge Congress to authorize business investment funds for loans and equity financing so that public funds can leverage private investment in rural business. The National Governors' Association believes that business investment funds should be available to support business start-ups, expansion, and community infrastructure necessary for job growth.
- Authorize and appropriate funds to support business management assistance and technical education for rural community leaders.

  State governments need to reach out to smaller communities with information on available federal, state, and local programs, and help establish field offices and specialized economic development staff to held local communities expand.
- Direct the U.S. Department of Agriculture to document and evaluate performance of the states operating the program and report findings to Congress.

## The Problem in Rural America

Jobs in rural areas are scarce and rural incomes are growing slowly. In fact, the rate of job growth in rural America since 1979 has been only one-third the rate in metropolitan areas -- a 4 percent increase compared to a 13 percent increase, respectively. Rural employment patterns have fared no better. Between 1980 and 1985, unemployment in rural areas was ten times greater than that of metropolitan communities, and rural per capita income, grew at only one-third the rate of income in metropolitan areas between 1979 and 1984. Nearly three-quarters of a million people are leaving rural America each year. This alarming rate of outmigration is unprecedented.

The cause of rural economic distress is not thoroughly understood. To some extent, the problem is cyclical and there are some signs of recovery. U.S. farmland values increased 3 percent nation wide from last year, ending a decline that began six years ago. The decline of the U.S. dollar in foreign exchange markets should continue to help the manufacturing sector, and rising commodity prices should lead to a partial recovery of the mining and timber industries.

An additional cause of economic problems in rural America is emerging. The United States' economy is increasingly becoming integrated into the new global economy. To maintain this nation's historically high level of per capita income, the United States must become more productive. The keys to prosperity include a highly skilled and adaptable workforce, a capacity to respond quickly to rapidly changing markets in this country and abroad, concerted efforts for increased efficiency at the company level, and more rapid introduction of technology into final products. Governors believe that federal and state rural development policies must facilitate a smooth and rapid movement of capital and labor from weaker to stronger industries.

## Difficulties in Designing Federal Rural Development Legislation

Diversity among rural communities makes the task of designing a national rural development policy more difficult. Some rural areas do not need assistance in order to achieve economic growth. For example, Leesburg, Virginia, and Vail, Colorado, are coping with development issues such as housing, transportation, and land use planning.

However, most rural regions will find the task of building strong and diversified economies a challenge. Twenty-nine percent of non-metropolitan counties are dependent on farming and 28 percent of non-metropolitan counties are dependent on manufacturing. The agricultural and manufacturing sectors of our economy have not shown employment gains for decades.

Remote rural communities must bear the major responsibility for identifying opportunities for local development and responding to structural change. Unfortunately, these communities have special problems because of their small economic and fiscal bases.

The proposed federal, state, and local alliance can improve rural enterprise development. The kind of capital and technical assistance needed is likely to vary state by state and from community to community. There is a need to think globally about business opportunities, but act locally.

The current federal programs are relatively ineffective in helping rural America make the necessary transition. Categorical programs that bypass state government undercut the states' ability to effectively help local communities leverage needed human and capital resources to create and retain local jobs. When states are active in rural development, scarce dollars are wasted if the state and federal governments duplicate each other's efforts, as may happen if the state is bypassed. Such actions may cause some states to let local governments and federal agencies "do their own thing" while the state concentrates its efforts on what it considers to be most important.

The goal of federal policy in this area should be cooperation, not competition. There is broad interest among Governors to help lagging sub-state regions, especially rural areas, expand.

## The Opportunity for Coordination Through States

Unfortunately, for the most part, current federal programs have been ineffective in helping the majority of small towns and rural communities. These programs have failed because they are often based on faulty assumptions. Nearly three-fourths of the federal spending in rural areas tends to be concentrated in programs that maintain income, rather than promoting economic change. Programs based on the occupation, age or income of rural citizens add to the total amount of income circulating in rural communities and provide a temporary stimulus or safety net to the local economy. But, increasing the flow of income alone does little to help citizens adapt to changing economic circumstances. Federal programs that invest in a community's human, infrastructure, physical, and natural resources maximize lasting improvements. Metropolitan areas receive under half of their federal funds from income redistributive programs. A larger portion of federal spending in urban areas promotes long-term economic expansion developments. Rural areas need to benefit from federal programs that are reprogrammed from redistributing income to anticipating and adapting to changing economic circumstances.

Federal formulas that target federal assistance underestimate economic distress in rural areas. Little federal data, such as unemployment, is collected on communities of under 2,500 people. When federal grant and loan programs that target expanding rural economic activity are provided, program information is not readily available in rural areas on these programs. And unfortunately, once federal programs are identified, part-time local economic development officials often miss useful assistance opportunities because they are intimidated by complex, cumbersome federal applications.

The ability of state government to have an effective role in managing state funds has been amply demonstrated in the community development block grant small cities programs. Since 1982, states have awarded 8,025 projects to 7,316 localities. Between 1982 and 1984, 37 percent of these funds went to communities under 2,500, and 30 percent went to communities of 2,500-10,000 people. States are measuring economic stress in communities under 2,500 people. Small, rural areas are working well with state government.

Competition, not coordination, occurs when federal agencies and local governments work together while the state concentrates its efforts in other areas. Awarding one rural business loan or conducting one small business workshop is not sufficient to revitalize a rural community. Capital and management assistance must be supplemented with other state activities, including education, training, highway construction, infrastructure development, and human services. States have a continuum of programs that can help communities realize their development goals.

A central concept of modern state economic development initiatives is to use the power of the Governor to cut across categorical program lines and achieve results. Local elected officials, such as county commissioners, and mayors, generally have the legal powers and institutional framework at the local level to attract and expand economic activity. Private sector leaders have joined local leaders in many areas of the country to address economic development through multijurisdictional planning and development organizations. Governors believe that the intergovernmental strategy for rural growth needs to be redesigned.

Important responsibilities will be fulfilled at the federal, state, and local levels in the pilot projects. The federal government will manage macroeconomic conditions that affect global market changes, recognize the role of state and local government in rural development, and target federal funds to test the new intergovernmental alliance. The state role will be to establish state rural development goals, set priorities, appropriate state funds, and manage federal and state programs.

Local governments play an important role in this process. They have the responsibility to assess local needs, develop comprehensive economic development plans, and work with the state-local government consultation commission to establish overall state strategies for economic change in rural communities. Such strategies should be based on sound local plans. Not all small and rural local governments, however, have the planning capacity or the opportunity to link the interest of state and local governments in developing and carrying out rational planning at both levels of government. These rural communities also benefit from the economies of scale offered by such intergovernmental cooperation.

Another important role of local government is to establish coalitions at the local level to expand business opportunities. This is particularly true with respect to building a strong bond with the private sector, including the local chambers of commerce and financial institutions. Without the involvement of such institutions, long-term business expansion is almost impossible. Local governments can strengthen the role of the private sector and the support it gives to their communities by developing a successful rapport with the local business and financial communities and involving them in local economic developing planning right from the start.

Besides building coalitions with the private sector, the local governments also assume responsibility for developing strong intergovernmental partnerships through inter-local agreements and with private non-profit organizations.

The National Governors' Association believe this new federal-state-local alliance is necessary to maximize the prospects for growth in lagging rural communities.

Thank you for the opportunity to appear before this committee. I will be happy to answer any questions.

## DELTA COUNCIL OF MISSISSIPPI

### STATEMENT OF CHIP MORGAN, EXECUTIVE VICE PRESIDENT

Senator COCHRAN. Our next witness today is Chip Morgan, who is the executive vice president of the Delta Council of Mississippi. The Delta Council is a very important organization in our State of Mississippi. It provides leadership in many areas, from flood control to agriculture production and research, and it continues to grow in influence and importance in our State. One of the reasons it does is because of Chip Morgan, who is a very energetic, hard-working, nice-looking, articulate witness.

We welcome you to the committee.

Mr. MORGAN. Thank you, Mr. Chairman. Maybe I should adjourn at this point. [Laughter.]

Thank you very much.

Mr. Chairman, we have submitted formal written testimony prior to our arrival and, if I could, in the interest of your time and the committee's time, just submit that written testimony and highlight some of the points in that testimony.

Delta Council is a nonprofit, privately supported organization of farmers and business leaders from northwest Mississippi, representing about 500,000 people in an 18-county area of the State of Mississippi.

On behalf of the people of our area, I would like, for the record, Mr. Chairman, to file and register our appreciation to this committee for the many years that you have provided support to agriculture research and education in rural development programs since the beginning of Delta Council.

The highlights that I would like to illustrate to you really review some of the things that we hear in Congress so often and that is:

What are the accomplishments of the investments that the Federal Government is making in research and education programs?

Briefly, our major crops are cotton, soybeans, rice, and farm-raised catfish in the State of Mississippi. Seventy percent of that agricultural production in our State is produced in the northwest Mississippi region served by Delta Council.

In cotton, we are reducing insect losses with smaller quantities of pesticides than ever before in the history of our State. Instead of using pounds and gallons, we are using grams of pesticides, literally, per acre.

This is through improved technologies provided straight through the Land Grant institutions and Agriculture Research Service, USDA. We are producing cotton in 20 less days than we did 15 years ago, which means innumerable savings in dollars, millions of dollars each year, due to the fact that we do not lose harvest days due to bad or inclement weather in the fall and rainy season.

This is largely due to cultural practices improved through technologies at our Land Grants and ARS, and seed varieties provided by the National Agriculture Research Service, USDA, and the experiment stations throughout that region.

In rice, we are experiencing tremendous strides in reducing the cost of production, better management of irrigation, and improved cultural practices provided by ARS and the Experiment Station System of providing higher yielding varieties, also.

The secret to being world-competitive in rice, as this committee well knows, and most other commodities, for that matter, is to reduce the cost of production per unit; therefore, you become more competitive worldwide and you can expand your export markets through that vehicle.

Technology provided through research appropriations that have come from this committee have made us get there quicker than we would have otherwise.

The catfish industry is the most rapidly growing agricultural industry in the country. In our State, catfish production has almost outpaced the technological aid that is being provided by ARS and the Land Grant institutions. But since this committee began 10 years ago appropriating funds for aquacultural research nationwide, we estimate that single research projects have accrued dividends of more than $30 million annually to the production of aquaculture products in our State alone.

So, we think the investments made by this committee in research and education programs in catfish is certainly one of the more self-evident examples of this committee's input into research and disease control and things that affect aquaculture.

Of special significance to us, we would like to point out from Delta Council's perspective, is that this committee is the committee that appropriated funds last year to establish the Pesticide Application Technology Unit at the ARS Mid-South Regional Facility. This facility, our unit, was established for the design purpose of looking at environmental and economical ways to utilize pesticides or reduce pesticide uses in order that they could be more effective. This is being carried out.

We think this is another example of this committee utilizing the foresight to see the needs that meet the public welfare, and we appreciate that from this committee.

In closing, Mr. Chairman, I would like to say, from someone who represents an organization that works in an area that is characterized by having 40 percent of its population below the poverty level—we have 12 of our 18 counties with higher than 20 percent unemployment—that, while many agencies and organizations, private and public, have searched to determine ways to revitalize rural America, we found that the place to come back for a stable course of action for revitalizing rural America is in this committee, and we appreciate what this committee has done to emphasize research so that agriculture can be more competitive and; therefore, rural America more prosperous.

In closing, we have sent a proposal to the committee relating to an economic audit being initiated by the Agriculture and Forestry Experiment Station in our region. It is called the Delta Project.

This proposal is a request for Federal support to match State and local participation in a project that will be quite similar to the Lower Mississippi Valley area, a project that is being proposed by you and other Senators, Senator Cochran.

This will be specifically aimed at coming up with solutions toward some of our economic problems in our region and letting local people carry out these solutions with local funds.

Senator COCHRAN. I appreciate your testimony, and I certainly want to express my support for the Delta Project.

I recall meeting with you and others in my office to talk about the plans for doing a survey of the needs, the assets, and the resources of that area, to try to determine how to utilize them to move the area forward economically.

I get back to the same conclusion you do when talking about this challenge that is faced in our part of the country. That is, if we have a healthy agriculture sector—if farming is doing well, the people are making money on the farm—then there are jobs; there are growth possibilities in all sectors of our economy. I think we ought to put a lot of emphasis on that.

I was reading the "Commercial Appeal" the other day, a byline, I recall, of Laura Coleman, who did an article about the outlook for agriculture this year, and it was very optimistic. There were quotes attributed to agriculture leaders and government officials, not just in the Midsouth area but also from all around the country.

We have a real good opportunity this year, barring any bad weather or some other disasters that can befall us, in making up a lot of lost ground, and I hope that that comes true. But we can't lose sight of the fact that agriculture research has to be funded. We need to continue to do that. We need to be generous in our efforts to support research, research that will help reduce the cost of production and improve productivity. We can't lose sight of that very important need.

Your testimony bolsters the conclusion that I reached some time ago. The catfish/aquaculture area is a good example. Recently, I talked with our mutual friend Turner Arant, who is very involved in that industry, as we know. We are trying to get more support here in Washington for that kind of research, and to make sure that we allocate some of our resources to deal with the problems that they are having in that industry.

Thank you for being here. We always enjoy getting to see you, and we appreciate your advice and counsel and getting a chance to work with you during the year. Thanks a lot.

Mr. MORGAN. Thank you very much.

[The statement follows:]

## STATEMENT OF JOHN DILLARD, PRESIDENT, DELTA COUNCIL

MY NAME IS JOHN DILLARD AND I FARM COTTON, RICE, CATFISH, AND SOYBEANS IN THE MISSISSIPPI DELTA. I CURRENTLY SERVE AS PRESIDENT OF DELTA COUNCIL, AN ORGANIZATION REPRESENTING THE AGRICULTURAL AND BUSINESS LEADERSHIP OF THE NORTHWEST MISSISSIPPI REGION, COMMONLY KNOWN AS THE MISSISSIPPI DELTA. THANK YOU FOR ALLOWING ME TO PRESENT THIS WRITTEN STATEMENT ON BEHALF OF DELTA COUNCIL AND THE CITIZENS OF NORTHWEST MISSISSIPPI.

THE MISSISSIPPI DELTA CONTAINS APPROXIMATELY 25 PERCENT OF THE LAND AREA AND POPULATION OF THE STATE OF MISSISSIPPI. ACCORDING TO MOST SOCIO-ECONOMIC INDICES, THIS REGION IS PERHAPS THE POOREST IN THE NATION. SINCE 1960, THE 18 COUNTY MISSISSIPPI DELTA REGION HAS EXPERIENCED AN INCREASE IN TOTAL EMPLOYMENT OF 15,501, AN INCREASE IN THE NUMBER EMPLOYED IN MANUFACTURING OF 19,324 AND AN INCREASE IN PER CAPITA INCOME OF $7,562 AND MEDIAN FAMILY INCOME OF $18,723. THESE INCREASES, HOWEVER, ARE OFTEN OVERSHADOWED BY THE STILL EXISTING HIGH RATES OF UNEMPLOYMENT (MARCH UNEMPLOYMENT FIGURES SHOW SHARKEY COUNTY WITH 27.8%; TUNICA COUNTY WITH 21.7%; AND HOLMES COUNTY WITH 18.8%) UNEMPLOYMENT RATES ARE PARTICULARLY HIGH AMONG THE MINORITY POPULATIONS. LOW EDUCATION LEVELS, LOW PER CAPITA INCOME AND LOW JOB OPPORTUNITIES CONTINUE TO DEPRESS THE REGION. THE POPULATION OF THE 18 COUNTY REGION IN NORTHWEST MISSISSIPPI HAS EXPERIENCED A DECREASE OF OVER 36,000 PEOPLE SINCE 1960. THESE FACTORS CLEARLY INDICATE THE ECONOMIC TROUBLES BEING EXPERIENCED IN OUR REGION, AND DEMONSTRATE THE NEED FOR CREATIVE AND INNOVATIVE IDEAS TO ENHANCE RURAL ECONOMIC DEVELOPMENT.

THE TRADITIONAL SOURCES OF JOBS AND WEALTH IN THE DELTA, AGRICULTURE AND MANUFACTURING, ARE SIMULTANEOUSLY DECLINING. WITH THE TRADITIONAL METHODS OF ECONOMIC DEVELOPMENT NOT EXPECTED TO OFFSET THE ADVERSE TRENDS FACING RURAL COMMUNITIES, IT APPEARS IMPERATIVE THAT A COMPREHENSIVE ECONOMIC DEVELOPMENT PLAN FOR THE 18 COUNTY DELTA AREA WHICH EFFECTIVELY ADDRESSES PROBLEMS, CHALLENGES AND OPPORTUNITIES BE INITIATED AND AGGRESSIVELY IMPLEMENTED.

IT IS THIS INITIATIVE WHICH LEAD US TO THE CREATION OF THE DELTA PROJECT, AN IN-DEPTH SOCIO-ECONOMIC STUDY DESIGNED TO SERVE AS A TOOL FOR BUILDING THE DELTA'S FUTURE. THE DELTA PROJECT, A MULTI-FACETED LONG-RANGE DEVELOPMENT PLAN BEING CONDUCTED BY THE SOCIAL SCIENCE RESEARCH CENTER AT MISSISSIPPI STATE UNIVERSITY AND SUPPORTED BY THE MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION AT MISSISSIPPI STATE UNIVERSITY, IS COMPREHENSIVE IN SCOPE AND FOCUSES ON THE FUNDAMENTAL ECONOMIC, SOCIAL AND POLITICAL FORCES THAT EITHER ENHANCE OR IMPEDE THE ADVANCEMENT OF THE REGION. THE FIRST FOUR YEARS OF THE DELTA PROJECT'S ACTIVITIES INVOLVE A COORDINATED EFFORT TO BRING TOGETHER A TEAM OF SCIENTISTS AND DELTA LEADERS WITH COMMON GOALS FOR PROMOTING GROWTH AND DEVELOPMENT OF THE REGION. FOUR MAJOR TYPES OF ACTIVITIES WILL BE CARRIED OUT DURING THIS FOUR YEAR PERIOD: 1) COMPUTERIZED INFORMATION SERVICES FOR DEVELOPMENT, 2) STATISTICAL PORTRAIT OF THE MISSISSIPPI DELTA, 3) ALTERNATIVE FUTURES FOR THE DELTA, AND 4) PROGRAM DEVELOPMENT AND IMPLEMENTATION.

COOPERATION AND SUPPORT BY LEADERS AT THE NATIONAL, STATE AND LOCAL LEVEL ARE ESSENTIAL TO THE SUCCESSFUL DEVELOPMENT OF THE REGION. SENATOR THAD COCHRAN AND SENATOR JOHN STENNIS OF MISSISSIPPI HAVE BEEN INVOLVED IN THE PROJECT. THIS SUPPORT COMBINED WITH THE BACKING OF GOVERNOR RAY MABUS OF MISSISSIPPI AND THE LOCAL LEADERS INVOLVED, WILL INSURE THAT OUR RESEARCH AND DEVELOPMENT PROJECT CAN AND WILL HAVE A DIRECT BENEFIT TO THIS UNDERDEVELOPED ECONOMICALLY DEPRESSED REGION.

IN CLOSING, THIS FOUR YEAR RESEARCH AND DEVELOPMENT PLAN, DEVELOPED UNDER THE DIRECTION OF A 30 MEMBER DELTA BASED ADVISORY COMMITTEE IN COOPERATION WITH MISSISSIPPI STATE UNIVERSITY, MISSISSIPPI'S LAND GRANT UNIVERSITY, WILL PROVIDE A FRAMEWORK FOR A FLEXIBLE LONG-RANGE PLANNING VEHICLE FOR PERHAPS THE MOST UNDER-DEVELOPED REGION IN THE UNITED STATES: THE MISSISSIPPI DELTA.

## Statement of Chip Morgan

MY NAME IS CHIP MORGAN AND I SERVE AS EXECUTIVE VICE PRESIDENT OF DELTA COUNCIL, A NON-PROFIT, PRIVATELY-SUPPORTED ORGANIZATION OF FARMERS AND BUSINESSMEN IN NORTHWEST MISSISSIPPI. OUR AREA COMMONLY KNOWN AS THE YAZOO-MISSISSIPPI DELTA, ENCOMPASSES AN 18-COUNTY AREA WITH A POPULATION OF 600,000 PEOPLE.

ON BEHALF OF THE PEOPLE OF OUR ENTIRE AREA, I WOULD LIKE TO EXPRESS OUR DEEP APPRECIATION TO MEMBERS OF THIS COMMITTEE FOR THE LEADERSHIP AND SUPPORT THAT YOU PROVIDE TO AGRICULTURAL RESEARCH AND EDUCATION PROGRAMS.

I WOULD LIKE TO GIVE YOU SOME OF THE HIGHLIGHTS OF THE HUGE SUCCESS WHICH YOUR APPROPRIATIONS TO RESEARCH AND EDUCATION HAVE REGISTERED IN OUR AREA ALONE. IN COTTON, WE ARE REDUCING INSECT LOSSES WITH SMALLER QUANTITIES OF PESTICIDES THAN EVER BEFORE; WE ARE PRODUCING OUR COTTON CROP IN 20 DAYS LESS THAN WE DID 15 YEARS AGO DUE TO NEW CULTURAL PRACTICES AND SEED VARIETIES THAT MATURE MUCH EARLIER. THIS EARLY MATURITY AND SUBSEQUENTLY EARLIER HARVEST DRASTICALLY REDUCES THE RISK OF LOSSES WHICH WE PREVIOUSLY EXPERIENCED WHEN WE WERE GROWING SEED VARIETIES THAT MATURED 20 DAYS LATER, RESULTING IN POOR HARVEST CONDITIONS DUE TO THE RAIN PATTERNS IN THE FALL.

IN RICE, WE HAVE EXPERIENCED TREMENDOUS STRIDES IN REDUCING THE COST OF PRODUCTION, THROUGH BETTER MANAGEMENT OF IRRIGATION AND IMPROVED CULTURAL PRACTICES, AS WELL AS THE INTRODUCTION OF NEW VARIETIES THAT PROVIDE MUCH HIGHER YIELDS. THE CATFISH INDUSTRY HAS GROWN SO RAPIDLY THAT CATFISH RESEARCH HAS ALMOST BEEN OUTPACED BY THE INDUSTRY'S RATE OF GROWTH, BUT SINCE THIS COMMITTEE BEGAN PROVIDING SUPPORT FOR AQUACULTURE RESEARCH ALMOST 10 YEARS AGO, SINGLE RESEARCH PROJECTS AIMED AT PROBLEM-SOLVING IN CATFISH PRODUCTION HAVE ALREADY REAPED MILLIONS OF DOLLARS OF BENEFITS BY REDUCING LOSSES TO DISEASES AND OTHER PROBLEMS INHERENT WITH THIS INDUSTRY.

OF SPECIAL SIGNIFICANCE TO US, WE WOULD LIKE TO REPORT TO THE COMMITTEE THAT THE PESTICIDE APPLICATION TECHNOLOGY UNIT THAT WAS ESTABLISHED BY THIS COMMITTEE LAST YEAR AS A PART OF ARS PROGRAMS HAS ALREADY BEGUN TO FOCUS ADDED EMPHASIS ON THE NEED TO ASSESS ALL ENVIRONMENTAL AND ECONOMIC ASPECTS OF IMPROVED MECHANICAL AND AERIAL APPLICATION OF PESTICIDES. THE AIM OF THIS UNIT AT THE STONEVILLE REGIONAL HEADQUARTERS OF ARS WILL BE TO EXPAND THE FARMERS' KNOWLEDGE OF METHODS THAT CAN BE USED TO REDUCE THE AMOUNT OF PESTICIDES REQUIRED TO CONTROL LOSSES DUE TO INSECTS, WEEDS AND DISEASES. IN OUR JUDGMENT, THIS IS ANOTHER EXAMPLE OF THIS COMMITTEE IDENTIFYING A HIGH PRIORITY IN AGRICULTURAL RESEARCH THAT ACCRUES HUGE BENEFITS TO FARMERS AND THE PUBLIC WELFARE.

EACH YEAR, THOSE PEOPLE WHO EARN THEIR ENTIRE LIVING ON FARMS RELY TOTALLY ON YOU IN CONGRESS TO SUSTAIN THE NECESSARY SUPPORT FOR NEW AGRICULTURAL TECHNOLOGY TO BE PRODUCED BY ARS AND OUR LAND-GRANT UNIVERSITIES, AND I WANT THE COMMITTEE TO REALIZE THAT IF IT WERE NOT FOR THE INVESTMENT WHICH YOU MAKE IN THESE PROGRAMS, EVERY FARMER IN OUR REGION OF THE COUNTRY WOULD BE FINANCIALLY INSOLVENT. THE DOLLARS WHICH YOU APPROPRIATE TO AGRICULTURAL RESEARCH HAVE BEEN THE "UNSUNG HERO" OF AMERICAN AGRICULTURE'S ABILITY TO COMPETE IN WORLD MARKETS ---QUITE SIMPLY GENTLEMEN, WITHOUT THE TECHNOLOGY WHICH HAS BEEN MADE AVAILABLE TO US THROUGH YOUR EMPHASIS ON AGRICULTURAL RESEARCH, OTHER CRITICAL ISSUES SUCH AS USDA MARKET INITIATIVES, FARM CREDIT, AND COMMODITY PROGRAMS WOULD NOT REALLY BE VERY SIGNIFICANT.

IN CLOSING, I ASSURE YOU THAT WE FULLY RECOGNIZE THE VERY STRENUOUS TASK WHICH FACES YOU IN AN ATTEMPT TO STRETCH OUR FEDERAL DOLLARS TO MEET THE MANY NEEDS IN THIS COUNTRY, BUT AS A FARMER FROM A SMALL RURAL COMMUNITY IN NORTHWEST MISSISSIPPI, I BRING YOU A STRONG MESSAGE FROM THE PEOPLE OF OUR AREA, -- "WHILE OTHERS MAY DEVELOP A GRAND MASTER PLAN FOR REVITALIZING RURAL AMERICA, THIS COMMITTEE HAS CONTINUED TO RECOGNIZE THAT THE MOST SIGNIFICANT FEDERAL ASSISTANCE AIMED AT GENERATING ECONOMIC ACTIVITY IN RURAL AMERICA IS THE STRENGTH OF A SOUND TECHNOLOGY BASE WITH WHICH WE CAN REMAIN COMPETITIVE IN WORLD AGRICULTURE".

## U.S. TELEPHONE ASSOCIATION

### STATEMENT OF JACK BENTLEY, EXECUTIVE VICE PRESIDENT, WESTERN NEW MEXICO TELEPHONE CO.

Senator COCHRAN. Our next witness is Jack Bentley, who is executive vice president of Western New Mexico Telephone Co. He is representing the U.S. Telephone Association.

Jack, it is good to see you.

Mr. MORGAN. Mr. Chairman, how are you?

Senator COCHRAN. You may proceed.

Mr. BENTLEY. Thank you.

As you indicated, I am Jack Bentley, executive vice president of Western New Mexico Telephone Co. located in Silver City, NM.

As chairman of the REA Borrowers Committee of the U.S. Telephone Association, USTA, I present this testimony on behalf of the over 1,100 member companies of USTA and the subscribers they serve.

The targeted assistance offered by a strong and viable REA is essential to maintain a healthy rural telephone industry that contributes to the provision of universal service.

We appreciate the strong support this committee has provided for the REA Telephone Program and look forward to a continued REA program for the future.

Based on extensive member experience with the program, USTA recommends that the Congress adopt the following for the continuation of a strong REA Telephone Program:

Maintain the fiscal year 1989 Telephone Loan Program authorization at the fiscal year 1988 levels;

Continue the important task of fully capitalizing the Rural Telephone Bank;

Set the REA administrative budget at a level that will ensure sufficient equipment and personnel;

Continue the congressional prohibition on REA general funds restrictions;

Reject administration proposals that would render many rural subscribers incapable of receiving the benefits of the REA program;

Encourage REA to eliminate unnecessary barriers to loan advances;

Encourage prepayment of high interest Federal Financing Bank loans; and

Ensure that financing is provided to achieve all act purposes.

The administration's REA budget reflects some undeniable philosophical and ideological goals. Many proposed reforms may act to undermine the REA program.

Rural utilities generally have higher costs and need more capital just to meet universal service obligations. Rural subscribers demand and deserve the facilities that provide a quality of service that is equivalent to that received by urban customers. To provide this service, REA borrowers need to invest in new technology. Just as technology is rapidly changing, so is the regulatory structure. Local customers are being required to shoulder a greater share of the telephone network expenses.

The REA Telephone Program targets assistance to rural subscribers in two ways. First, it lends for the extension and improvement of facilities; second, the relatively low cost of those funds enable rural telephone systems to counter unreasonably high costs of service. After all, offering a telephone line to a household at higher rates that render service effectively unaffordable is the same as having no telephone facilities at all. REA complements the Communications Act goal of reasonable charges.

The REA program is a unique voluntary public/private partnership that directly benefits rural people. Telephone companies and cooperatives act as conduits for service benefits between the Federal Government and rural subscribers, REA's intended beneficiaries.

The Government's contribution is leveraged by the equity, management expertise and dedication of local telephone systems. Disqualifying any group of companies serving rural areas just penalizes rural subscribers.

Last year, in response to congressional directions concerning restrictions on general funds and loan simplification, loans increased in both the REA and RTB programs. This should have translated into greater benefits for rural consumers, but the facts suggest the rural consumer did not obtain all available benefits. Loan advances in the telephone program fell far short of loan approvals. Even though $185 million in RTB loans were approved last year, only $52 million in funds were actually advanced—the lowest level since 1973. Over $1.5 billion in approved REA and RTB loans remain unadvanced. Thus, the dollars that were actually approved have not begun to flow into improved basic facilities.

Some funds remain unadvanced because of normal regulatory and construction delays. But REA policies can also discourage advances. Without actual advances, the promise of the REA program fails. Funds do not get to borrowers, jobs are not created, plants are not built, subscribers are not served. Congress should encourage REA to eliminate all policies that hinder the advance of approved loan funds.

Similarly, REA has refused to lend for the construction of particular types of telephone plants which are permitted by the Rural Electrification Act. Those policies should be eliminated, especially since the REA insured program did not meet the minimum loan level again last year.

Despite Congress' annual appropriations of sufficient REA administrative funds, each year the administration proposes to reduce funds for administering the REA program, and each year REA returns funds to the Treasury. Yet, REA's loan processing system has not been updated, and its engineering and standards staff levels are inadequate. A sufficient administrative budget is a solid investment in an effective REA.

Good telephone service is essential to America's rural foundations and yields enormous returns to the national economy by stimulating production, reducing the trade deficit, generating additional tax revenues, and increasing employment. Now, when many rural areas are enduring a severe financial hardship and profound economic restructuring, REA is needed more than ever.

REA can be the model rural development program it was first envisioned to be. Congress should authorize adequate loan levels, encourage REA to abandon policies that improperly limit the benefits of the REA program, and, most importantly, retain the essential partnership between government, telephone companies, and consumers.

Thank you, Mr. Chairman, for this opportunity to present our views.

Senator COCHRAN. Thank you, Mr. Bentley.

In reference to your suggestion that Congress should encourage REA to eliminate all policies that hinder the advance of approved loan funds, do you have any specific policies in mind? If I wanted to call REA and start identifying policies or procedures that could be changed to help ensure that loan money is actually advanced after the loan is approved, what could I cite as a policy or procedure that needed changing?

Mr. BENTLEY. There are probably, in my mind, extensively two major ones. One is that they have refused to loan any funds for headquarters facilities of any of the telephone companies that are REA borrowers.

These facilities, as we go through the changes of technology, do need to be increased from time to time, and these companies are having to add personnel. Without being able to add on to headquarters, it is a real strain, because they are using the money to get service to the people rather than the headquarters built.

The other is that in some very small companies, and this is basically what we are talking about, there is equipment in line of vehicles. I am not talking about the normal truck or car that is used out there, I am talking about some major equipment for doing varied cable installations and, if the company is still into aerial, to do aerial installation. Those vehicles are very, very expensive, and they do cause a real drain on the company.

Senator COCHRAN. And you aren't eligible to use loan funds for those vehicles?

Mr. BENTLEY. No, sir.

Senator COCHRAN. You have helped us understand some of the problems facing REA. With REA testifying earlier in our series of hearings that revenues are up by $1.2 billion over a 5-year period for operations for telephone borrowers, I had assumed that maybe the telephone companies would be in pretty good financial shape.

Mr. BENTLEY. No.

Senator COCHRAN. Those sound like good figures, though.

Mr. BENTLEY. Those do sound like excellent figures. The problem from my standpoint as an operations man in a company is, yes, revenues are up, as well as the operating expenses of the company, and those are causing a real drain.

Even though we are in a rural area, the people that it takes to operate the technical facilities to get service to the customers are the same type of people who are in the urban areas, and we are having to compete with the wages and all of the types of benefits of that urban area as in the rural area, and those drive up costs very extensively.

Senator COCHRAN. Thank you very much for being here and representing the Telephone Association Borrowers Committee in a very capable manner. It is good to see you again, and thank you for providing us with your suggestions.

Mr. **Bentley**. I appreciate being here. Thank you.

Senator **Cochran**. Thank you.

[The statement follows:]

## STATEMENT OF JACK BENTLEY

### Opening Remarks

Mr. Chairman and Members of the Subcommittee, I am Jack Bentley, Executive Vice President of Western New Mexico Telephone Company. I appear before you as a representative of the United States Telephone Association (USTA) and as Chairman of the USTA REA Borrowers Committee. USTA represents over 1100 member companies that provide telecommunications services to over 99 percent of the access lines in the United States. USTA members range from large publicly held corporations to family-owned companies and cooperatives owned by their customers. I present this testimony in the interests of the members of USTA and the subscribers they serve.

Local telephone companies are dedicated to fulfilling two goals: serving the nation's telecommunications needs and maintaining universal service. USTA members, large and small, firmly believe that the targeted assistance offered by a strong and viable Rural Electrification Administration (REA) is essential in order to maintain a healthy and growing rural telephone industry that contributes to the provision of universal telephone service. We appreciate the strong support this committee has provided for the REA telephone program since its inception in 1949 and look forward to a continued vigorous REA program for the future.

### Recommendations

USTA recommends the following for the continuation of a strong REA Telephone Program:

a. maintain the fiscal year 1989 telephone loan program authorization at the same levels approved for fiscal year 1988:

| | |
|---|---|
| REA Insured Loans | $239,250,000-$311,025,000 |
| Rural Telephone Bank Loans | $177,045,000-$210,540,000 |
| REA Loan Guarantees | $119,625,000-$138,765,000 |

b. continue the important task of fully capitalizing the Rural Telephone Bank (RTB);

c. set the REA administrative budget at a level that will ensure that adequate personnel and equipment are available to perform its statutory function;

d. continue the Congressional mandate prohibiting REA general funds restrictions;

e. reject Administration budget proposals that would render many rural subscribers incapable of receiving the benefits of the REA program;

f. encourage REA to eliminate unnecessary barriers to loan advances;

g. encourage prepayment of high-interest Federal Financing Bank (FFB) loans; and

h. ensure that financing is provided to achieve all Act purposes.

We understand the continued budget constraints Congress must face, but the Administration's fiscal year 1989 budget for REA reflects some undesirable philosophical and ideological goals. Many of the Administration's proposed "reforms" would change REA from an efficient, effective rural development program to one of little or no benefit to telephone subscribers.

### A Changing Industry

The telephone industry is undergoing dramatic change. Both its technological underpinnings and its regulatory atmosphere are much different than just a few years ago. All change, whether positive or negative, creates dislocations in the economy. As this committee knows well, these dislocations are amplified in the fragile rural economy. Now is certainly not the time to weaken a program that helps rural Americans cope with current changes in the telecommunications industry while preparing rural America for the next century.

Utilities are capital intensive and this is particularly true of rural telephony. All utilities need to invest large sums of capital to extend service, modernize plant and provide new services. Rural utilities generally have higher costs and need more capital to meet their universal service obligations.

The vast majority of REA borrowers' switching offices still have mechanical step-by-step technology. Rural telephone systems will need new switching offices to continue the present level of telephone service and to provide new services that urban customers will enjoy. Maintenance of the old step-by-step offices is getting more expensive and parts are getting scarce.

In the last 10 to 15 years, most REA borrowers have upgraded to one-party service by installing buried cable, aerial cable and other equipment. The service life of these investments is commonly 15 years. Whether the new technology is digital switching, open network architecture, signalling system seven, equal access or lightwave transmission, rural subscribers demand and deserve facilities that provide a quality of service that is equivalent to that received by urban customers.

Just as technology is rapidly changing, so is the regulatory structure of telecommunications. Local customers are being required to shoulder a greater share of the telephone network expenses. The REA telephone program targets assistance to rural telephone subscribers. It keeps them on the network by allowing for reasonable phone bills and extends and expands that network in rural America to meet the needs of the future.

Given the need to update switching centers and the requirement to begin replacing outside plant, along with the stress of regulatory changes, maintaining REA lending at 1988 authorized levels is essential for the preservation of universal service. The job of serving rural areas requires continuing commitment; it is certainly not finished.

## The REA Telephone Loan Program Aids Rural Development

Good telephone service is an essential part of rural America's infrastructure, and yields enormous returns to the national economy. It helps expand production, both agricultural and non-agricultural; reduce the trade deficit, generate additional Federal, state and local tax revenues, and stimulate employment.

Now, when many rural areas are enduring a severe financial hardship and a profound economic restructuring, REA is needed more than ever.

The REA telephone program is one of loans and not grants. These loans are for construction of facilities, not operation of companies. The telephone program has never had a default in its 35 year history. It can be a model rural development program. If anything, the REA program should be copied, not changed.

## REA Helps Rural Americans

There is little argument that good, dependable telephone service is a necessity of modern life. Without the REA program, telephone service quality in rural areas would deteriorate. The telephone amendments to the Rural Electrification Act and REA standards ensure that good telephone service is provided to the "widest practicable number of rural users" in each borrower's service area.

The REA program assures the availability of telephone service in two ways. First, it provides the necessary capital to fund the extension and improvement of facilities. Second, the relatively low cost of that capital enables rural telephone systems to counter inherently high costs of service. After all, being offered a telephone line at high rates that render service effectively unaffordable is the same as having no telephone facilities at all. REA complements the Communications Act goal of reasonable charges.

The REA telephone program directly benefits rural subscribers. Telephone companies and cooperatives act as conduits for service benefits between the federal government and rural telephone subscribers, the intended beneficiaries of the REA program. Proposals to limit the number of REA borrowers by making "holding companies" ineligible for the REA program totally miss the point. The REA program is a unique voluntary public/private partnership that benefits rural people. The government's contribution is leveraged by the equity, management expertise and dedication of local telephone companies and cooperatives. Eliminating any group of companies serving rural areas penalizes rural subscribers and diminishes the program's effectiveness.

Proposals to eliminate funding for "recreation areas" while promoting rural development are clearly contradictory. Rural America's two most valuable assets are its land and its people. Development of recreational facilities take advantage of both assets, creating jobs and reviving the economies of rural areas. Recreation and leisure time activities are recognized to be growth industries. Why should rural areas that attract this industry be discriminated against by stifling the development of telecommunications facilities?

## Loans Levels Are Adequate, Advances Are Not

Last year minimum telephone loan levels were exceeded in the RTB program. Although they were not met in the insured program (despite $44 million in unprocessed applications), loan approvals increased over prior years. This is good news -- in response to congressional direction concerning general funds restrictions and loan simplification, loans are increasing. This should have translated into greater benefits for more rural consumers, but the facts suggest that the rural consumer did not obtain all available benefits. Loan advances in the telephone program are far short of loan approvals. Even though $185 million in RTB loans were approved last year, only $52 million in funds were actually advanced to borrowers to build telephone plant and serve subscribers. Hundreds of millions of dollars in approved REA and RTB loans remain unadvanced. As of the end of fiscal year 1988, over $848 million in insured loans and over $792 million in RTB loans were approved but not advanced. And, unfortunately these figures are growing. Thus, the dollars that were actually approved have not yet begun to flow into improved facilities.

Some of this is the normal lag in regulatory approval, bidding and ordering equipment, and actual delivery. But a significant portion of it is caused by REA policies that can discourage the draw-down of loan funds. Without the actual advance of loan funds, the promise of the REA program fails. Funds do not get to borrowers, jobs are not created, plant is not built and subscribers are not served. Congress should encourage REA to examine all of its policies and procedures and eliminate all that unnecessarily hinder the advance of approved loan funds.

Similarly, REA has taken it upon itself to refuse to lend for certain purposes that are permitted by the Rural Electrification Act. Any policies that contravene the intent of Congress by eliminating loans for particular Act purposes should likewise be eliminated.

## Completion of Full Capitalization of the Rural Telephone Bank (RTB)

Through its adoption of an interest rate formula for the Rural Telephone Bank as part of the budget reconciliation package last year, Congress recognized the value of the government purchase of Class A stock in the Bank. The formula specifically referred to the stock as a component of the calculation of the interest rate and was structured to ensure that the stock was purchased promptly. The Class A stock serves the dual purposes of allowing the Bank to lend at below market rates and infusing capital into the Bank, enabling it to fulfill its role as a substantial supplemental source of funding for telephone borrowers. The full capitalization of the Rural Telephone Bank should be completed as authorized under present law.

## REA Should Continue to be Prohibited from Imposing General Funds Restrictions

Early in the 1980s, REA's restrictions on loans and advances because of a borrower's level of general funds almost destroyed the REA program. The initiative of this committee and the action of Congress prohibited REA from relying on these restrictions. The subscribers served by the three quarters of telephone borrowers which were excluded from the program were again able to receive the full benefit of the REA program. We hope and recommend that the general funds prohibition be included in the fiscal year 1989 appropriations bill.

## REA's Administrative Budget Should Not be Reduced

Each year the Administration budget proposal includes a reduction in funds for administering the REA program. Despite the fact that this Committee has rejected these unreasonable estimates and has appropriated adequate funds, each year REA returns unused administrative funds to the U.S. Treasury. The return of these funds is not warranted since REA's computer technology used to process loans and advances has not been updated, the level of engineering staff is inadequate to serve as a sparkplug for developing cost saving technology specifically for rural areas (a role played by REA in the 1960s and 1970s) and an insufficient amount of resources is devoted to projects such as a major overhaul of REA's policies and procedures. An adequate REA administrative budget is a solid investment in an effective REA telephone program, now and in the future.

## Federal Financing Bank Loan Prepayments

In the early 1980s, many REA telephone borrowers received high interest rate loans from the Federal Financing Bank (FFB) which were guaranteed by REA. Now some of these funds could be replaced by lower interest rate private capital, benefitting rural telephone customers.

However, none of the loan guarantee program prepayments permitted by Congress in the last two years has been made by telephone borrowers, despite their keen interest in reducing their cost of debt. A minimum of $500 million in prepayment authority remains from the amount authorized in the Continuing Resolution (H.J. Res. 395) adopted last year. Although this authority will be available October 1, 1988, less than six months away, REA has taken no steps to implement the law. REA should be encouraged to promulgate rules that allow prepayments by telephone systems.

## Conclusion

Congress will assure the effective operation of this worthy and necessary program by continuing to authorize adequate loan levels, encouraging REA to abandon policies and proposals which inhibit the benefits of the REA program from reaching rural America, and most importantly, by retaining the worthwhile partnership between REA, telephone companies and consumers.

Thank you again for this opportunity to present our views concerning this vital program.

## Letter From Jack Bentley

Senator Thad Cochran
United States Senate
Washington, D.C. 20515

May 13, 1988

Dear Senator Cochran:

I testified before the Subcommittee on Agriculture, Rural Development and Related Agencies on April 26, 1988, on behalf of the United States Telephone Association, regarding continued funding of a strong REA telephone program. I would like to supplement and clarify the response I provided to a question that you posed to me. Please include this additional information in the official hearing record.

In addition to focusing on adequate loan levels for the REA telephone program, my testimony addressed REA rules that inhibit REA from meeting its minimum loan levels and from actually advancing funds. You requested specific examples of such rules.

First, REA has adopted policies (without benefit of informal rulemaking procedures) that prohibit REA from providing loans for purposes included in the Rural Electrification Act. There are two prominent examples of such policies. REA refuses to lend funds for construction of telephone system headquarters facilities and will not lend for telephone company vehicles. Both items are legitimate parts of telephone company plant facilities and are important elements in the operation of the telephone system. Large bucket trucks used to repair poles and lines are a major investment for a small company, yet REA refuses to lend for them. Similarly, all administrative functions are carried out at the telephone company's headquarters facility.

REA also has policies and procedures that discourage telephone borrowers from receiving advances of funds under already approved loans. One policy forces Rural Telephone Bank borrowers to draw down their loans at a high rate of interest agreed to in a prior year, even though the RTB's cost of money is substantially lower at the time the borrowers request advances. Amendments to the Rural Electrification Act, which were enacted as part of last year's budget reconciliation, addressed this problem for borrowers who would receive loans after December 22, 1987, but not for borrowers with loan contracts signed before. Also, REA insists that borrowers with concurrent REA and RTB loans draw down the higher interest RTB funds first. REA also imposes prerequisites to advances of loan funds that, in some cases, conflict with policies of appropriate state regulatory bodies. Thus borrowers are trapped between REA policies and state policies and cannot draw down funds. Finally, the red tape involved from the signing of a loan to the actual advance of funds unnecessarily slows down the process.

Problems involving refusal to lend by REA for Rural Electrification Act purposes as well as policies which deter the actual advance of funds to build facilities belie the promise of REA to the rural telephone subscriber.

Thank you for this opportunity to extend my remarks.

Sincerely,

Jack L. Bentley

Jack Bentley
Chairman
USTA REA Borrowers Committee

## AMERICAN SOCIETY FOR MICROBIOLOGY

### STATEMENT OF DR. RUDY J. WODZINSKI, PROFESSOR, BIOLOGICAL SCIENCES, UNIVERSITY OF CENTRAL FLORIDA

Senator COCHRAN. Our next witness is Dr. Rudy Wodzinski, professor of biological sciences at the University of Central Florida, representing the American Society for Microbiology.

Welcome.

Dr. WODZINSKI. Thank you, Mr. Chairman. I appreciate your hearing us.

As you stated, I am representing the American Society for Microbiology. The ASM is the single largest biological sciences organization in the world, with a membership of over 34,000.

Many of our members are engaged in agricultural research, and they are recipients of awards administered by the USDA. There are also a number of our scientists who work for ARS and work in the industrial sector.

ASM is encouraged by USDA's initiative in biotechnology within the Competitive Research Grants Program, and we recommend not only support for this program but increased support. We believe that this program is underfunded.

It is kind of a nice time to reflect on the Competitive Grants Program, because it is just 10 years old. It started in 1978 with the funding of about $14.4 million. If we look at the funding at the present time and express it in constant 1978 dollars, we find that it would calculate to $22 million. Now, that would show an increase over 10 years of approximately $7.6 million in 1978 constant dollars; however, it is $2.6 million in constant dollars below the 1985 figure.

Although $7.6 million may seem like a lot, we have taken on really a large number of new projects, including some in biotechnology. In constant dollars, it appears that it is largely underfunded.

Another witness from the American Veterinary Association commented on comparisons between NSF and NIH and USDA, and we also provided some figures in the tables at the end of our statement. There is no doubt of that, in comparison, USDA is terribly underfunded.

Probably a good comparison is to compare NSF to USDA, and if we look at average grants, the average grant within USDA is $54,700 and is for 2 years, whereas in the NSF the average grant is $67,800 and normally for 3 years.

What is even more distressing is the percentage of proposals which result in grants. In NSF, 42 percent of the proposals result in grants, 37 percent in NIH, but only 24 percent at USDA.

What we have seen occurring in the last couple of years is that the number of individuals applying for grants to USDA is declining. In fact, I believe it is down something like 40 percent over 2 years. It appears that individuals do not find it efficient to apply for grants which are of a shorter time period and for less money.

What is very disconcerting is that in 1987, the last year in which there are figures available, there were 224 proposals that were worthy of funding but were not funded.

Now, you know, one can always say that maybe the percentage should be less for USDA and should only be 24 percent of the grants funded, that maybe there aren't the ideas there. But that is not the case when we find that the panels which look over these grants find that 224 were worthy of funding but there were no funds for them.

We believe that the funding in the Competitive Research Grants efforts should be increased, and it should be increased to make it commensurate with what happens in the National Science Foundation.

We believe that these worthy proposals that come in and are not funded should also be funded.

If we take these figures and calculate this out, we find that instead of a request of $54.5 million for competitive grants, it should be close to $125 million for competitive grants. That would put it on a par with the National Science Foundation.

Now, the same type of research is expected for individuals working in agriculture and, in fact, it is even more complex, in the sense that we have all these different plant systems, different animals to work with within agriculture; whereas, NIH will concentrate mainly on humans and the experimental animals.

So, we have a tough task, and it always seems to be rather underfunded.

We believe, also, that two new initiatives should be taken. We believe that $2 million should be appropriated to look at new methodology having to do with the genetic release of organisms.

It is one of APHIS's functions to regulate release of genetically engineered organisms. We believe that the Competitive Grants Program would be an ideal area to fund research on new methodology to trace these.

Now, we also feel that there should be $5 million in new moneys to look at relieving the farm surpluses in the Competitive Grants Program. We find it ironic that there is no money which is allocated for that particular area.

So, if we add the $2 million and the $5 million and bring it up to the same level as with NSF as far as the grants and the number of projects funded, this comes to $132 million instead of the $55.4 million.

In our written statement we have pointed out the number of individuals who are not trained in agriculture because of the underfunding, and how this has decreased since 1978. I would like to call your special attention to it, without going into detail.

I would also like to make one further statement as far as the retrofitting of buildings within the ARS. There are a number of USDA installations which require retrofitting, and there never seems to be enough money to accomplish this.

We are aware that missions change, and maybe certain laboratories are not staffed at the levels they should be. We believe that a study should be performed to determine how efficiently these buildings are being used before new buildings are constructed.

There are many figures indicating that retrofitting can be 50 percent of the cost of new buildings, or 90 percent, depending on what is required.

Of course, we also realize that there are some buildings that should not be retrofitted but should be demolished. But we call this to your attention.

We also support an increase in funding for inspection of animals, to $10 million.

Thank you, Mr. Chairman.

Senator COCHRAN. Thank you very much.

I notice that you are recommending an increase of $7 million for competitive grants research, focused on basic research.

Dr. WODZINSKI. Correct.

Senator COCHRAN. We had a previous witness who talked about basic research, too.

I think our Senate committee has been comparatively generous, compared with the House subcommittee in this area.

Dr. WODZINSKI. I think so.

Senator COCHRAN. As a matter of fact, I think we put some of the first moneys in the appropriations bill for that purpose a few years ago when I was serving as chairman of this subcommittee. It continues to be an area where it is hard to get the juices flowing in the veins of Members of Congress, because the practicality of it is not easily understood or is not readily perceived. Tell me how I tell my colleagues that that is an important thing to do.

Dr. WODZINSKI. I think we are starting to see some of it now, I think if you look back even at the Competitive Grants Program before biotechnology, and I think that is important to look at.

One of the problems that we have in biotechnology, when we talk about improving plants, is that there was a hiatus when there wasn't too much funding for plant physiology type research. So they really have to play catchup quite a bit.

But one of the enzymes that is used—I think in the Monsanto product for use with the herbicide, where they are able to engineer it into the desired plant so they can use higher levels of herbicide without achieving the desired crops—was originally discovered in the Competitive Grants Program.

So, you have this problem, at times, with the basic knowledge not being funded. This was the point I was trying to make a little bit earlier but didn't really state it properly, where I said in agriculture we are expected to do a lot more things, than is perhaps done with NIH, to work with the different systems.

Now, things are happening. We see also in the Competitive Grants Program that there was a thing called agrobacterium cumifaceous, which is used as a vector in order to put the DNA from one plant cell into another cell. Much of that work was supported by the Competitive Grants Program in the early days, too. There is always that lag.

We are starting to see the utility of that now. It takes a while before the utility comes on out. I do think we are seeing some industrial participation now, and it is based on much of what was funded earlier through competitive grants, through some of the land grant programs.

Now, universities don't conduct developmental work; that has to be done in industry. But if those tools aren't available, we are not going to see the fruition.

I think we are going to see a lot of things, pesticides and other things, that are going to make our environment safer by using biotechnology, where we can still control the insects which we have to do, but do this in a much safer way.

Is this an example? I noticed the other day, just here, locally, they were talking about some aerial spraying to combat gypsy moth infestations in the Fairfax County area of northern Virginia, but that in other areas they were going to introduce parasites, where the aerial spraying wasn't going to be performed. Is that the kind of thing that is developed through biotechnology?

Dr. WODZINSKI. I don't know that specific one, but I do know they have taken the genes from what is called the crystal bacillus thoringiensis, the toxic crystal that is used for looper and cabbage worm. They put it into a plant, and the animal chews on the plant. That's all she wrote. So, they are putting it right in to actually eliminate the spray.

Now, these are still being tested, and stuff. I know they are not spraying that particular one. I didn't see the one in Fairfax County.

Senator COCHRAN. Do you know, if you plant lavender by your rosebush, the insects won't get on the roses?

Dr. WODZINSKI. Right. Well, there are opportunities for a lot of crosses. I don't know if that particular one will work, but I see so much promise. And yet, there is really no one funding this at a level that it should be. You would hope that it would come out of agriculture.

Senator COCHRAN. Well, I thank you for taking time to come visit with us about these things. We appreciate the benefit of your testimony.

Dr. WODZINSKI. Thank you.

[The statement follows:]

## STATEMENT OF RUDY J. WODZINSKI, PH.D.

My name is Rudy Wodzinski and I am a Professor at the University of Central Florida and I am Chairman of the Committee on Agricultural, Food and Industrial Microbiology of the American Society for Microbiology (ASM). On behalf of the ASM, I wish to submit for your consideration the following comments on the Fiscal Year (FY) 1989 research budget for the U.S. Department of Agriculture (USDA).

The ASM is the largest single biological life science organization in the world with an active membership of over 34,000. Many of our members are engaged in agricultural research and are recipients of awards administered by the USDA. Our comments are directed primarily to the Competitive Research Grants program and the initiative in biotechnology within the Cooperative State Research Service (CSRS) and increased support for training.

The ASM is encouraged by the USDA's initiative in biotechnology within the Competitive Research Grants program in the CSRS. We recommend not only continued support for this program but also increased support because several areas within the Competitive Grants program are underfunded.

Although the Competitive Grants program has been in existence for only 10 years, major scientific achievements have resulted from this important funding program. Many of these will have a positive economic impact on agriculture. However, a study of the history of the funding reveals that the budget is inadequate to achieve the goals of the program. The program was initiated at a funding level of $14.4 million in FY 1978 (Figure 1). The Administration's request for FY 1989 is $54.5 million. If the FY 1989 budget were expressed in 1978 constant dollars it would calculate to $22 million. Although this represents a real increase over 10 years of approximately $7.6 million, in 1978 constant dollars, it is $2.6 million below the FY 1985 level. The proposed level for fiscal 1989 is inadequate to satisfy the needs and demands of modern agriculture.

The USDA has consistently lagged behind other agencies in funding research. A large number of worthwhile projects are not being funded. Research in biotechnology and the biological sciences is costly. It demands well-trained scientists, support personnel to utilize the time of these scientists efficiently, expendable items and expensive state-of-the-art instrumentation. Basic research with eventual application to agriculture costs the same on a per project basis as research performed on biological systems when applied to health (National Institutes of Health) or fundamental biological science (National Science Foundation). During FY 1987, the last year for which data are available, a USDA-funded scientist, was expected to perform research in the area of agriculture with an award that averaged $54,700 per year. Grants awarded in FY 1987 by the NSF averaged $67,800 per year and grants awarded by the NIH averaged $175,100 per year. Although the differences between agencies in annual award rates have decreased within the last few years, these differences are still large enough to be significant.

The ASM is deeply concerned by the low level of funds in the Competitive Grants program, $54.5 million. The level precludes the funding of a large number of worthwhile research proposals. Only 12.6% of the funds requested by the Competitive Research Grants program was funded by the Congress in FY 1987. Also, the percentage of total proposals resulting in grants was only 24.1% in FY 1987 (Figure 2). If the USDA funding levels are compared to the NSF (42.2%) and NIH (38.3%) levels, it is obvious that in

1987 scientists working in agriculture who applied for USDA funds were only 58 and 63% as likely to be funded as their counterparts who applied for funds from NSF or NIH (Table 1).

During FY 1987 there were 224 proposals that were worthy of funding but not funded because of lack of money in the program. If these worthwhile projects were funded it would have increased the funding from 24.1% (392/626) to 37.8% (616/1626) (Table 2 and Figure 3). This funding rate would still be lower than the funding rate of NSF and NIH. The funding of these 224 proposals would require an additional $24.5 million be added to the Competitive Grants program if they were funded at the same annual level as the grants that were awarded, (that is $54,700 x two years x 224 proposals) or $78.5 million. If the total number were funded at the same annual rate for three years as is the norm in the NSF (that is $67,800 x three years x 616 proposals), $125 million would be required in the Competitive Grants program without the addition of any new programs. Grant applications to the USDA grants program in FY 1987 decreased by 16% from FY 1986 and 41% from FY 1985. Apparently, researchers do not find it efficient to apply for grants to USDA that have such a low possibility of funding, a relatively low award rate as compared to NSF and NIH, and a shorter duration of the award - two years versus three to five years. Additionally, the USDA budget in the Competitive Grants area is small when compared with other federal agencies.

We have analyzed the USDA budget for the past few years to determine if USDA is meeting its aim of bringing basic and applied researchers into agriculture. This analysis has provided data which is extremely disconcerting. When one adds the Competitive Grants program together with the special grants, forestry grants, animal health and disease grants, and training grants, and expresses the totals in 1978 constant dollars, it is apparent that the high point for support of agricultural research was in 1985, when $97.44 million was appropriated. Since then the support for USDA research has waned. It was $15.24 million less than 1986; $21.8 million less than 1987; $25.7 million less than 1988 (estimated); and $45.7 million less than the FY 1989 request. We have translated these decreases in funds to the training of graduate students to work in agriculture (Figure 4). As a basis, we have assumed that a three-year $70,000 grant will train two pre-doctoral graduate students. On this basis, 145 fewer graduate students were trained in agriculture in 1986 than in 1985, 288 fewer in 1987 than 1985, 244 fewer in 1988 than 1985, and if the Administration's request is granted, 436 fewer in 1989 than 1985. Accumulative totals, if the FY 1989 budget is adopted, would result in 1,333 fewer doctoral students than were trained over a five-year period in this program. Putting these values in perspective, the $70.14 million in the FY 1987 budget appropriation should train about 684 students. The net result of the declining budget for USDA research is a shortage of individuals who are trained in plant and animal systems. If this trend continues, the U.S. will be required to recruit foreign scientists to satisfy their research needs in agriculture. The ASM respectfully requests that the committee consider the impact of the budget request and increase funding for training young scientists to work in agricultural research.

The ASM perceives a real need for the support of research to be conducted on the development of new methodology to trace the fate of genetically engineered microorganisms that are released into the environment. APHIS has the responsibility for regulating the release of genetically engineered organisms which are used in agriculture and must make decisions in large part based on methodology developed by the individuals whose products will be regulated. Regulatory decisions could benefit from the development of protocols for tests by university or ARS scientists. We are not aware of any other agency, that is NSF, EPA or NIH, which is supporting this type of research in any significant way. We strongly recommend that $2 million be added to the annual competitive grants budget for a period of not less than three years to satisfy this need. This level of funding would support 23 research teams. Additionally, a minimum of $5 million of new monies should be added to the competitive grants budget for biotechnology (microbiology) research and Commodity Conversion to develop new food and non-food uses for surplus agricultural commodities.

It seems especially ironic that no competitive grant monies are targeted to relieve the farm surpluses. The prospect of increased yields through agricultural research coupled with the prospect of a shrinking world market for farm commodities due to the self-sufficiency of dozens of other countries who were previously dependent on imports, mandate that a strong biotechnology research initiative be implemented to create new markets for surplus agricultural commodities.

The ASM believes that a utilization research initiative within the Competitive Grants program that was based on utilizing new approaches and technology would generate more ideas from the private, public and land grant institutions that would meet the challenges of the farm surplus problem more expeditiously. This type of program should complement and not replace the existing programs.

We believe that the overall budget for the Competitive Research Grants Office (CRGO) should be increased in FY 1989 to $132 million. The needs are as follows: $125 million to fund worthwhile research in current programs at the same level as NSF, $5 million for biotechnology research projects aimed at relieving surpluses, and $2 million for the development of methods to assess the impact of the release of genetically engineered organisms on agriculture.

The Administration has recommended budgetary reductions for Higher Education grants ($2.825 million) with no funding requested for Competitive Graduate Training grants. This comes at a time when the number of research trainees is declining and the situation will be worsened by cuts in the research training budget of the USDA. If the annual award rate for Competitive Research Grants does not increase to an appropriate level to permit training assistance on a grant, then it is not feasible to terminate funding for training grants in the FY 1989 budget. Full funding of the Competitive Grants Program at the level of $132 million might eliminate the need for training grants, but funding at lower levels does not. It usually requires that an individual study and conduct research three to five years beyond a BS level to earn a Ph.D. When awards are allotted in the Competitive Grants program, they average two years. These awards terminate in the middle of a doctoral candidate training in his or her research. If a new award is not made in the same area of research, the candidate is devoid of support and often results in the termination of the research project. Even if the candidate obtains some support (teaching assistantship or unrelated job) to compensate for the loss of his or her fellowship ($7,000 to $12,000 per year), it results in an inordinate increase in the time it takes a candidate to earn a Ph.D. This significantly decreases the number of productive years that are devoted to agricultural research.

The Administration has also recommended that the research activity of the Special Grants program ($45.7 million), be eliminated. It should be recognized that these proposed cuts

($45.7 million) will also significantly impact the training of individuals in agriculture since these funds support graduate students and postdoctoral fellows (Figure 5). If these programs are eliminated, the monies inherent in the programs for training should be shifted to the Competitive Grants program to ensure that there is an adequate supply of scientists to satisfy the needs of agriculture in the future. The ASM also recommends that if Congress determines it is necessary to restore funding for these programs because it perceives specific problems must be solved in agriculture, that, whenever possible, it direct these funds to research involving the new methodology of biotechnology. This approach would yield innovative solutions to new and old problems that have not been possible in the past. This type of direction would solve specific problems while building a biotechnology base in agriculture which would subsequently be applied to all agricultural needs.

The ASM supports the initiative within the ARS to retrofit some of their existing facilities. However, we believe that the amount required does not adequately address the magnitude of the problem. A critical analysis of the problem should be performed to ascertain the needs and especially the cost to upgrade the various facilities within the USDA. We believe that special attention should be focused on the capacity of these installations that house the research areas of the Service. Although we do not have adequate numerical data to document our perceptions, we believe that the current occupancy of these facilities based on science years falls far below the intent and their original capacity at the time of construction. For example, the regional research centers in Albany, California, and New Orleans, Louisiana are far below the capacity for these structures. We believe a moratorium on new buildings should be imposed on construction of facilities unless it's clearly demonstrated that a real need exists that cannot be filled by retrofitting existing facilities. Estimates by other individuals indicate that retrofitting of research facilities can be done at 50 to 90% of the cost of new construction. The variations are due to the extent of retrofitting that is necessary. Clearly if needs have changed so drastically that retrofitting is not possible then new constructions must be made. We believe that a plan should be formulated over a three to five-year period in which monies are appropriated to adequately restore the buildings within the Service to full capacity.

The ASM also supports the recommendation of the National Association for Biomedical Research (NABR) to restore the proposed cut of 20% and to increase the fiscal 1989 appropriation for the Animal and Plant Health Inspection Service's program for enforcement of the Animal Welfare Act to a level of $10 million. This level of funding will help to ensure that all covered facilities are regularly and carefully inspected by well trained individuals, and that APHIS has the management and administrative support necessary to carry out added responsibilities under the revised Animal Welfare Act.

We appreciate the opportunity to express our views and stand ready to assist in any way possible during your deliberations on the FY 1989 budget for the USDA research and training budget.

TABLE 1
Comparison of funding of Biological Research in the
U.S. Department of Agriculture, National Science Foundation
and National Institutes of Health
(FY 1987)

| | USDA[a] | NSF[b] | NIH[c] |
|---|---|---|---|
| Number of proposals | 1,626 | 5,305 | 18,471 |
| Number of grants funded | 392 | 2,240 | 6,453 |
| Percent (%) of proposals resulting in grants | 24.1% | 42.2% | 38.3% |
| Amount requested (dollars in millions) | $338.5 | $1,316 | $2,328 |
| Amount awarded (dollars in millions) | $42.7 | $156.3 | $1,130 |
| Percent (%) of requested amount awarded | 12.6% | 11.9% | 41.9% |
| Average amount of award (dollars in thousands/year) | $54.7 | $67.8 | $175.1 |

[a] USDA - data for competitive grants but does not include training grants

[b] NSF - data from the cellular, molecular and biotic systems and resources biosciences division, directorate for biological, behavioral and social sciences, NSF

[c] NIH - data for total NIH

Source: USDA, NSF and NIH

TABLE 2
Funding practices in theDepartment ofAgriculture
Competitive Research Grants Program
(FY 1978-1987)

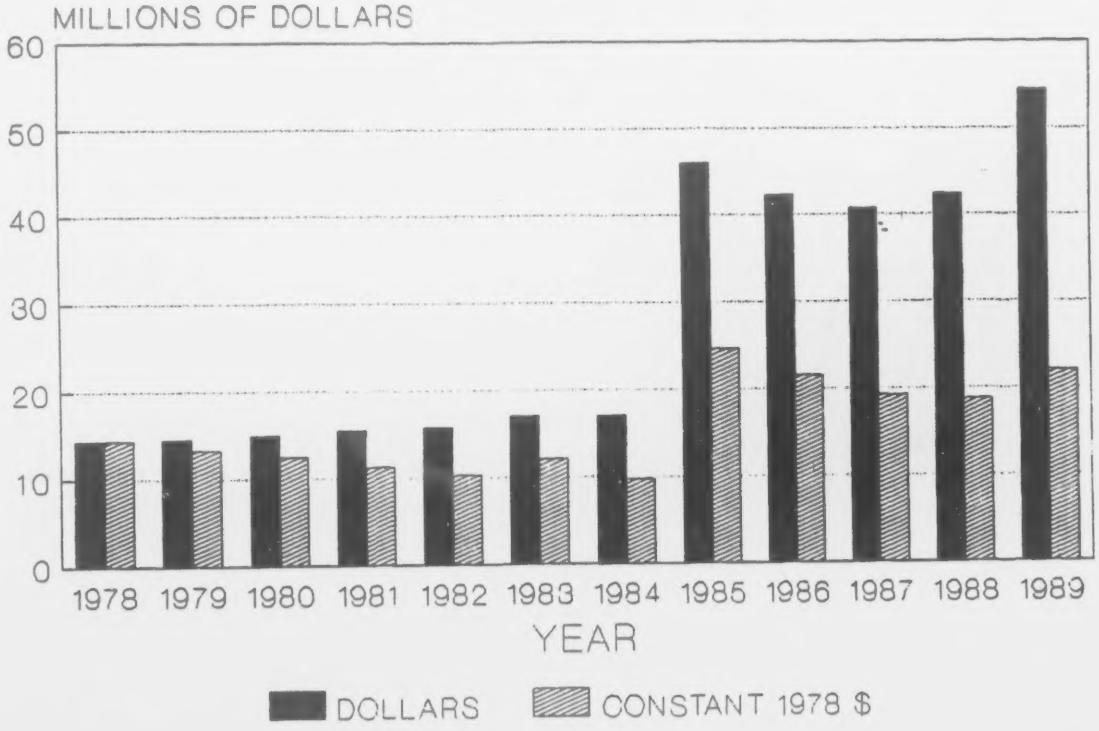
| | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of proposals | 1,109 | 861 | 598 | 793 | 780 | 909 | 853 | 2,592 | 1,939 | 1,626 |
| Number of grants | 197 | 193 | 206 | 207 | 212 | 219 | 219 | 504 | 434 | 392 |
| Percent (%) of proposals resulting in grants | 17% | 22% | 34% | 26% | 27% | 24% | 25.7% | 19.4% | 22.3% | 24.1% |
| Amount requested (dollars in millions) | $250 | $134 | $99.7 | $139.3 | $130.7 | $160.3 | $154 | $578.1 | $404 | $338.5 |
| Amount awarded (dollars in millions) | $14.4 | $14.55 | $15.04 | $15.5 | $15.83 | $16.46 | $16.4 | $51.7 | $44.3 | $42.7 |
| Percent (%) of requested amount awarded | 5.7% | 10.8% | 15.1% | 11.1% | 12.1% | 10.3% | 10.6% | 8.9% | 11.0% | 12.6% |
| Average annual award per year (dollars in thousands) | - | - | - | - | - | $34.3* | $35.2 | $51.3 | $49.0 | $54.7 |

*Grant awards averaged $74,845 but were generally for two years

Source: USDA

FIGURE 1

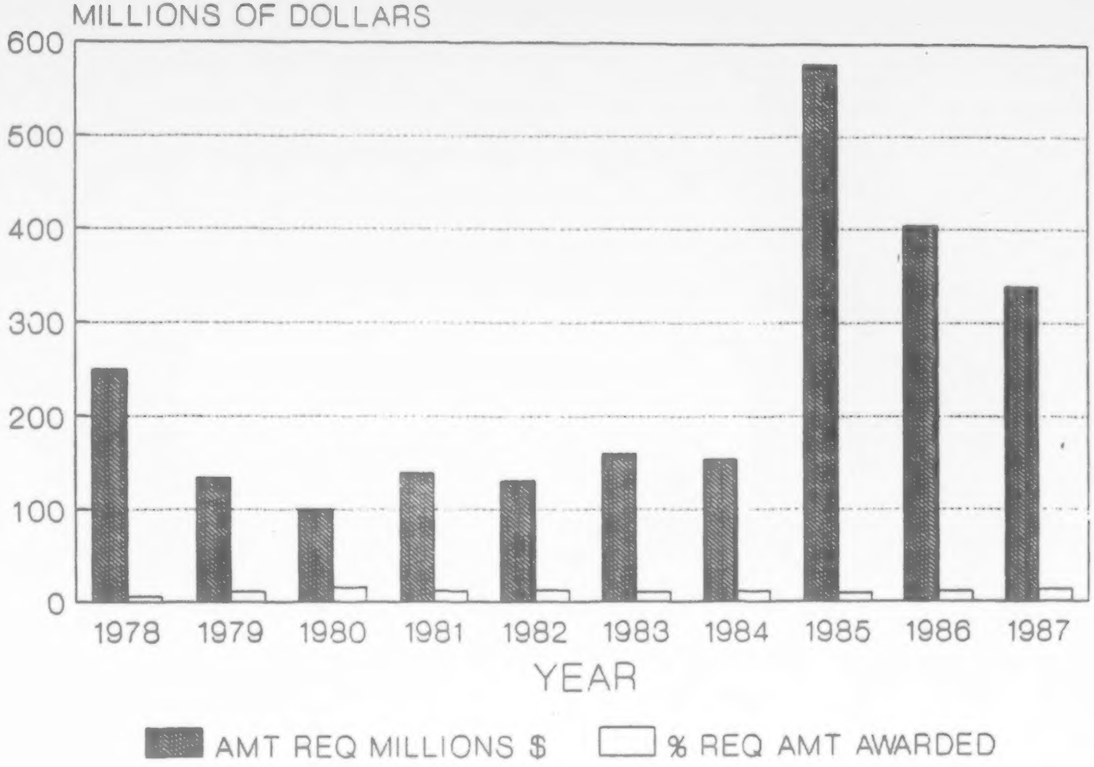
## CRGO FUNDING HISTORY



ADJUSTED WITH OMB GNP DEFLATORS

FIGURE 2

FUNDING PRACTICES IN CRGO (FY 1978-1987



SOURCE USDA

FIGURE 3 **PERCENTAGE OF GRANT APPLICATIONS RECOMMENDED FOR FUNDING AND PERCENTAGE AWARDED, USDA, FYs 1978-1987**

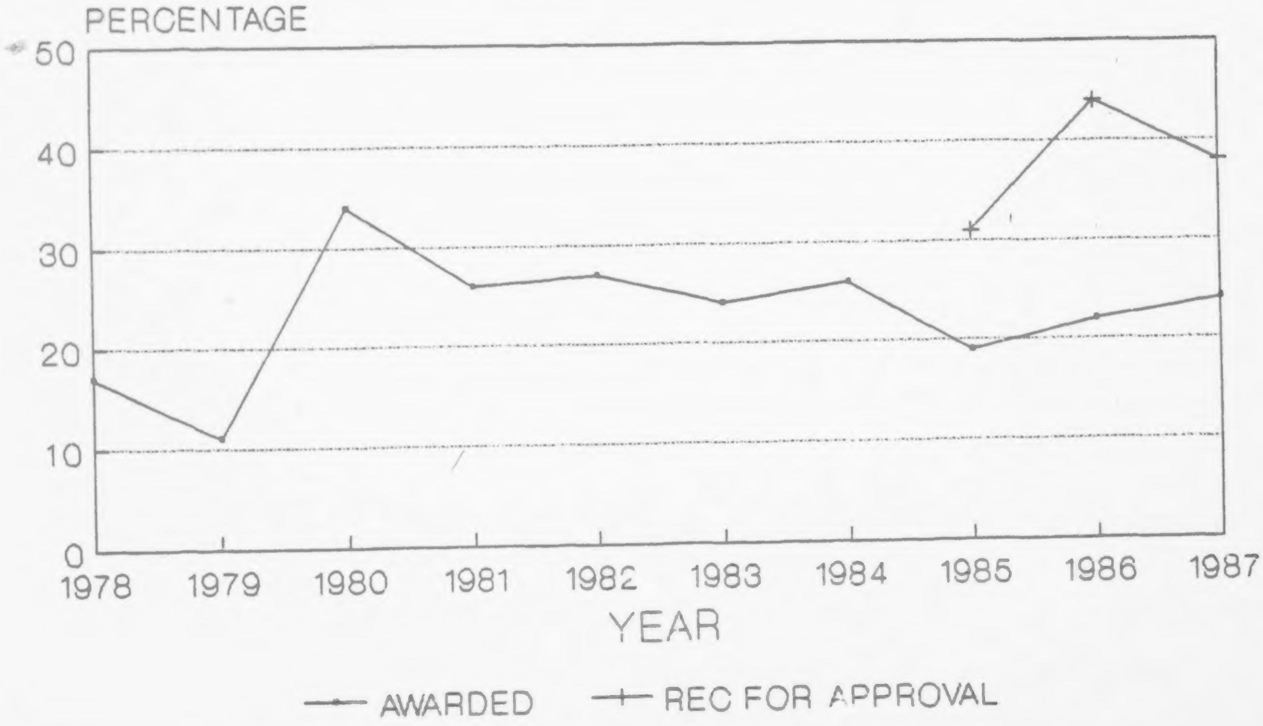
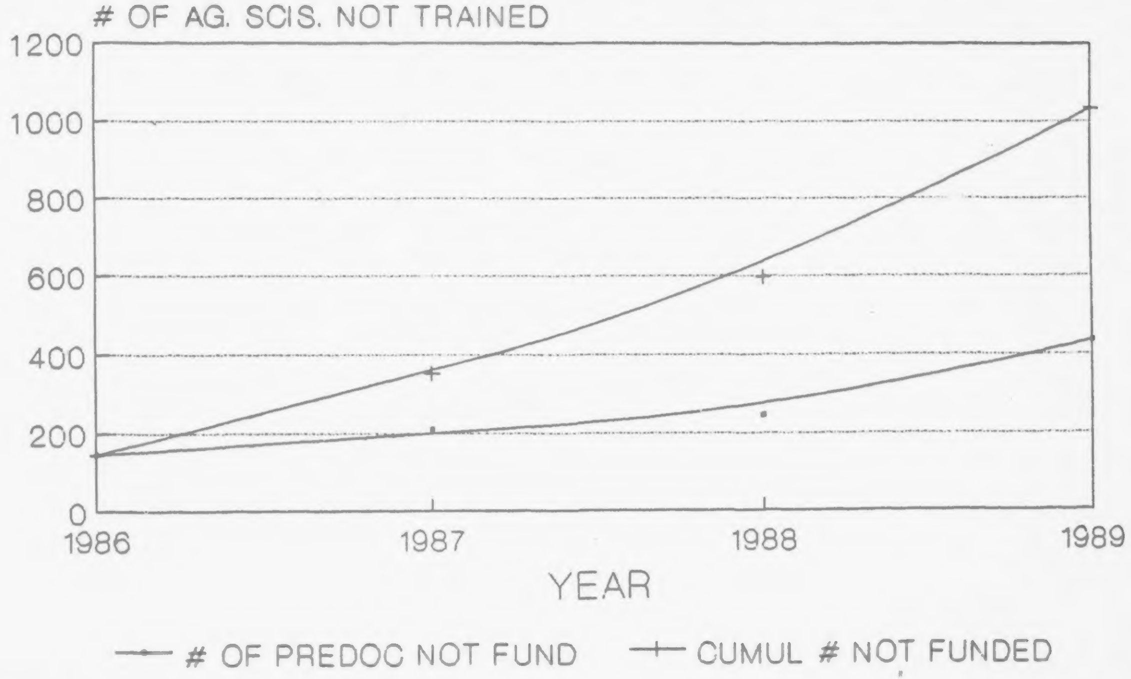


FIGURE 4

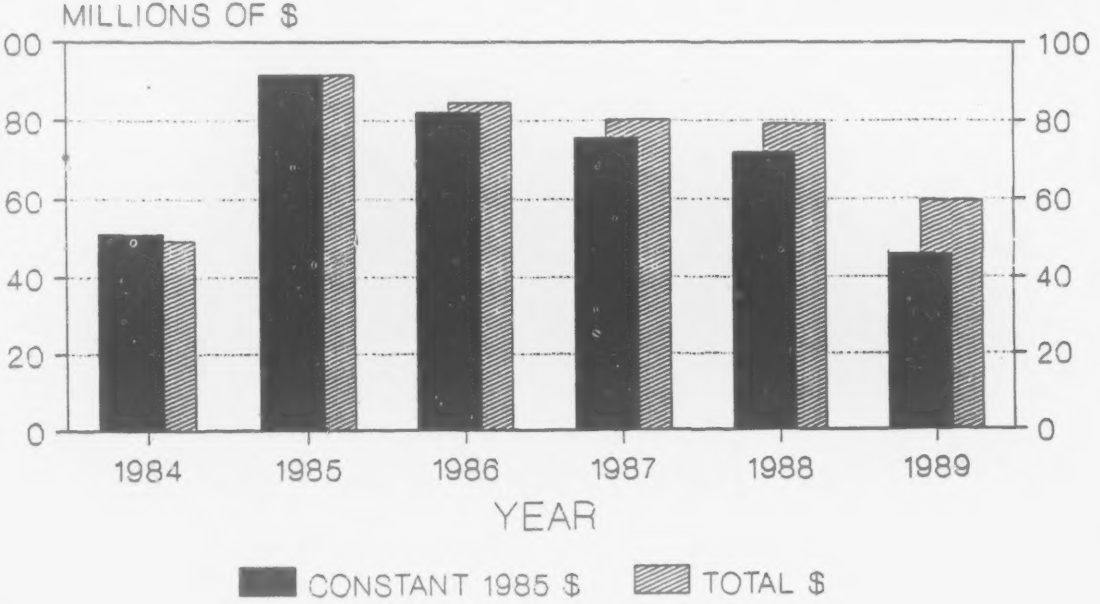
EFFECT OF DECREASED FUNDING
ON TRAINING OF AGRICULTURAL SCIENTISTS



INCLUDES CRGO, FORESTRY, ANIMAL &
TRAINING GRANTS

FIGURE 5

## HISTORY Of CSRS FUNDING
## TOTAL RESEARCH GRANTS (1984-1985)



ADJUSTED WITH OMB GNP DEFLATORS
INCLUDES CRGO, FORESTRY, ANIMAL &
TRAINING GRANTS

## NATIONAL ASSOCIATION OF STATE DEPARTMENTS OF AGRICULTURE

### STATEMENT OF J.B. GRANT, EXECUTIVE SECRETARY

Senator **COCHRAN**. Our next witness is J.B. Grant, executive secretary of the National Association of State Departments of Agriculture.

Welcome to our committee.

Mr. **GRANT**. Thank you, Mr. Chairman. It is always a pleasure to appear before the distinguished Senator from Mississippi, and we appreciate this opportunity.

I would ask, Mr. Chairman, that my full statement be made a part of the record, and I will briefly summarize a rather lengthy statement.

It seems that for the last 7 or 8 years we have consistently had to come back to this committee and ask that you give serious consideration to restoring dollars to the proposed budget that has been eliminated from cooperative State/Federal programs, and that is our main purpose here today.

As you have an opportunity to look through our statement, you will find that most of the programs that we are talking about are programs that are funded by the Federal Government and by State government, and in some cases industry participates.

Today I just want to briefly touch on several of those programs.

Brucellosis: The administration has proposed a significant reduction for brucellosis. In the third year of a 5-year program, we believe that this is one of the most difficult times to eradicate a disease. It is in the final stages, and we believe we are approaching that stage.

Because eradication is so vital to the cattle industry, we urge that the Congress continue the funding for the brucellosis program at the fiscal year 1988 level.

Pseudorabies and other important animal health programs have been marked for a 58-percent reduction. It is important that this program be funded at no less than fiscal year 1988 levels.

For the third consecutive year, the administration has called for zero funding for the important Fire Ant Program and for the noxious weed programs. As in the past, we believe there is no justification for such drastic action.

Federal funds are necessary to assist in controlling these problems.

The Golden Nematode Program, also proposed for total elimination this year, should be funded at last year's level. This program is necessary to protect agricultural industries of the potato growing areas of the United States.

We rarely come to this subcommittee and ask for new moneys. However, this year we want you to give serious consideration to a new program: We strongly recommend that appropriated funds be allocated for research directed toward eradicating the Russian wheat aphid. This aphid is a very serious problem, one for which there is no short-term solution, and one which we believe will become a more serious problem throughout the wheat and barley producing States of the West. If left uncontrolled, it can virtually destroy a major part of the western wheat crop. It is essential that USDA cooperate in eradicating this insect fast.

I would add, Mr. Chairman, that we have just recently established within our organization a technical advisory committee that will be very helpful in bringing this pest under control.

Since the Animal Damage Control Program was moved from the Department of the Interior to the Department of Agriculture, and our association was very instrumental in that move, the administration has proposed drastic reductions to the Federal responsibility. Agricultural losses caused by wild animals cannot be contained without maintaining the relative relationship of the Federal/State cooperative programs. We urge you to fund this important program at the fiscal year 1988 level.

The administration proposes to virtually eliminate funding for boll weevil control, including the Texas High Plains Program, the Southwest Eradication Program, and the Expanded Southeastern Program. We believe the 4-year program could virtually eliminate the boll weevil and revitalize the cotton industry. We oppose the elimination or reduction of funding before the objectives of this program are met fully.

We support APHIS's international programs and fully realize the importance of stopping foreign diseases and pests before they enter the United States. However, it is our contention that these programs should not be funded at the total expense of the domestic agricultural programs.

We oppose the administration's proposal for the elimination of funding for the Federal Seed Act, the Wholesale Market Development Program, and the Payments to States Program.

Funding to support the Federal Seed Act is vital, since States do not and cannot control interstate shipments on sale of seed. As is the case with many programs, the Federal Seed Act should be a strong base to support individual State's programs.

The Conservation Reserve Program has significantly increased the purchase of seed from out-of-State producers in many States, and we are receiving complaints about the quality and mislabeling of seed, and that has risen significantly in the recent week.

For these reasons, we believe that we need Federal assistance to ensure compliance with the Federal Seed Act. Therefore, we urge a complete restoration of the $1.05 million provided in fiscal year 1988 in the Federal Seed Act.

The Payment to States Program is an important matching fund program which has effectively promoted the adaptation of new technology for marketing of farm products and seeking new outlets for existing farm-produced commodities. We disagree with the administration that it is no longer necessary to assist the States in conducting marketing service projects geared to developing ongoing State capabilities and service to address specific marketing problems. We urge that these moneys be restored, also.

NASA has been cooperating with the Foreign Agricultural Service for many years in expanding our overseas markets. The biennial NASDA National Food and Agriculture Exposition is an excellent example of that.

FAS has been an invaluable partner in this effort. We urge the Congress to appropriate $100 million to the Foreign Agricultural Service in fiscal year 1989.

Overall, market development activities have been enhanced by the Targeted Export Assistance Program. Though this program runs through 1990, we urge this committee to begin thinking beyond 1990 in a continuation of the TEA Program.

The administration has proposed to eliminate funding for aquaculture research centers. The establishment of aquaculture research centers is necessary to provide the basis for technology advances and education for expansion into diversification by American farmers.

Aquaculture may provide a viable means of diversification necessary to maintain sufficient agricultural income.

NASDA has always been a strong supporter of basic agricultural programs. We strongly support a viable program in research and extension and feel it is imperative that we stay in the forefront of technology and science as applied to agriculture.

The administration's fiscal year 1989 budget proposals for Soil and Water Conservation's programs reflect the continued attention given to implementing the provisions authorized by the Conservation Title of the 1985 Food Security Act. While we support this initiative, we do not support the reduction of the Water Resource Management Program or the elimination of the Conservation Cost-Sharing Program.

Mr. Chairman, that concludes my summary. I will be happy to answer any questions.

Senator COCHRAN. Thank you, Mr. Grant.

I notice that the proposal you are suggesting for the Russian wheat aphid eradication project is one I hadn't heard about before. Is this a new program, or is this something I just missed?

Mr. GRANT. Yes, sir; it is a new program. As a matter of fact, I had not heard seriously of the problem until last January at a meeting in Boise, ID. Fifteen western State departments of agriculture are actively working now and have been meeting almost on a regular basis in Denver, looking at the potential disastrous effect of this insect.

A great deal of money has already been spent on research by a number of universities. The University of Colorado has been very active in this program. The Commissioner of Agriculture in Wyoming and the Commissioner of Agriculture in Colorado are heading up an effort to bring together a technical advisory committee to work with USDA and with NASDA in making certain that the moneys that are being spent now by the States and by the university system are being put to its best effect.

The dollar figure that I have heard, to do a research program and to work on the total eradication program, I believe, is something like $12 million a year for the next 5 years. And we have just recently established the Technical Advisory Committee. There will be 12 people on this committee, and there will be some people from the scientific committee and also from the USDA who will be serving on it, but this committee is under the auspices of our association.

Senator COCHRAN. You mentioned in your testimony the $26 million-plus losses occurring in the State of Colorado just last year. That really sounds like a lot of money to me. And you say 15

States are involved in the problem? So, they must have had losses also in those States.

Mr. GRANT. All of the western wheat States are very, very concerned about this problem.

Senator COCHRAN. How do they measure that loss?

Mr. GRANT. As I said, the university system in the States that has been affected has been doing research on this problem for a number of years. I know very little, technically, about this problem, Senator, but we will be happy to furnish you with all of the technical information that you want.

Senator COCHRAN. Yes.

Mr. GRANT. But those figures have been determined through an evaluation program of the problem by a number of universities and State departments of agriculture throughout the West.

Senator COCHRAN. We appreciate your bringing that to our attention, and I am sure we will be looking into it more to see if there is some way we can work with local universities and producers in an attempt to deal with that problem.

Thank you for the other parts of your testimony also. You cover a wide range of subjects, and we know that your association has contacts in every State.

Jim Buck Ross is a very good friend of mine, as you know. We were together just the other day. He came to Washington to help advertise some new products that we have produced down in Mississippi in the aquaculture area. I think the State departments really do a lot of good work. They bring the expertise that has accumulated from all of these States to the committee every year, through the testimony that the national association provides, and I always find that very helpful and interesting.

Mr. GRANT. Senator, I would only add one other thing. I mentioned our NASDA National Food and Agriculture Exposition. That idea was conceived by your Department of Agriculture in Mississippi.

Senator COCHRAN. I remember that. Wasn't it Atlanta where you were going to have it?

Mr. GRANT. Since its inception, we have held three shows, and they have developed additional processed food sales overseas in the hundreds of millions of dollars additionally.

Senator COCHRAN. That is a good report. Thank you very much for being here, Mr. Grant.

Mr. GRANT. Thank you, Senator.

[The statement follows:]

## STATEMENT OF JAMES B. GRANT

MR. CHAIRMAN, AND MEMBERS OF THE SUBCOMMITTEE, I AM J.B. GRANT, EXECUTIVE SECRETARY OF THE NATIONAL ASSOCIATION OF STATE DEPARTMENTS OF AGRICULTURE. I AM PLEASED TO MAKE THIS STATEMENT ON BEHALF OF OUR ASSOCIATION.

NASDA REPRESENTS THE DEPARTMENTS OF FOOD AND AGRICULTURE IN THE FIFTY STATES AND THE U.S. TERRITORIES OF GUAM, AMERICAN SAMOA, PUERTO RICO AND THE VIRGIN ISLANDS. THESE STATE AND TERRITORIAL DEPARTMENTS OF AGRICULTURE WORK CLOSELY TOGETHER.

FIRST I WOULD LIKE TO STATE A LONG STANDING POLICY OF NASDA. WE BELIEVE THE FEDERAL DEFICIT SHOULD BE REDUCED AND THAT THE FEDERAL GOVERNMENT, AS WE DO IN THE STATES, SHOULD OPERATE FROM A BALANCED BUDGET. WE HAVE CONSISTENTLY SAID AGRICULTURE IS WILLING TO DO ITS PART IN REDUCING THE NATIONAL DEFICIT, BUT SHOULD NOT HAVE TO TAKE MORE THAN ITS FAIR AND EQUITABLE SHARE OF THOSE REDUCTIONS.

IN RECENT YEARS, AGRICULTURE HAS BEEN SINGLED OUT TO TAKE INORDINATE BUDGET CUTS EITHER BY EXCESSIVE REDUCTIONS OR SUBSTITUTING USER FEES FOR APPROPRIATED FUNDS. ALTHOUGH DRASTIC CUTS HAVE NOT BEEN PROPOSED FOR 1989, SOME VERY IMPORTANT COOPERATIVELY FUNDED PROGRAMS HAVE BEEN SLATED FOR ELIMINATION OR DRASTIC REDUCTIONS. MOST OF THESE PROGRAMS ARE FEDERALLY MANDATED CONSUMER PROTECTION OR SERVICE PROGRAMS, MANY CARRIED OUT COOPERATIVELY WITH STATES AND INDUSTRY.

THE JUSTIFICATION BY THE ADMINISTRATION, THROUGHOUT THE BUDGET, IS THAT THE STATES AND/OR INDUSTRY WILL ABSORB THESE PROGRAMS. THIS SIMPLY WILL NOT HAPPEN. AT THE PRESENT TIME, STATES AND INDUSTRY ARE IN NO FINANCIAL CONDITION TO TAKE OVER THESE PROGRAMS, NOR SHOULD THEY HAVE TO ASSUME TOTAL RESPONSIBILITY FOR FEDERALLY-MANDATED PROGRAMS. WE RESPECTFULLY REQUEST THAT CONGRESS APPROPRIATE ADEQUATE AND SUFFICIENT MONIES THAT WILL CONTINUE TO ALLOW THE U.S. DEPARTMENT OF AGRICULTURE TO FULFILL ITS MANDATED OBLIGATION TO AMERICAN FARMERS, RANCHERS AND TO ALL AMERICAN CITIZENS. WE ARE PLEASED THAT THE BUDGET DOES NOT RENEW PROPOSALS FOR USER FEES TO FUND THESE PROGRAMS, BUT RIGHTFULLY PROPOSES THAT APPROPRIATED FUNDS BE USED.

### COOPERATIVE PROGRAMS

NASDA AND THE STATE DEPARTMENTS OF AGRICULTURE HAVE BEEN WORKING COOPERATIVELY WITH THE ANIMAL AND PLANT HEALTH INSPECTION SERVICE OF THE DEPARTMENT OF AGRICULTURE ON THE ERADICATION OF BRUCELLOSIS THROUGHOUT THE UNITED STATES. OUR EFFORTS HAVE PAID OFF, AND THE NUMBER OF HEAVILY INFESTED STATES HAS CONTINUED TO DROP. WE WOULD AGREE THAT FUNDING COULD BE REDUCED IN THE FUTURE TO CARRY OUT APHIS's LONG RANGE GOAL OF SURVEILLANCE AND ENFORCEMENT OF INTERSTATE REGULATIONS, BUT FY 1989 SHOULD NOT BE THE YEAR TO REDUCE FUNDING. THE MOST DIFFICULT TIME TO ERADICATE A DISEASE IS IN THE FINAL STAGES, AND WE BELIEVE WE ARE APPROACHING THAT STAGE. EVEN THOUGH THE NUMBER OF HEAVILY INFESTED STATES HAS DROPPED, POCKETS OF HEAVILY INFESTED HERDS REMAIN. THESE POCKETS MUST BE ELIMINATED BEFORE FUNDING LEVELS ARE REDUCED.

THE PROPOSED REDUCTION WOULD REDUCE AND EVENTUALLY ELIMINATE THE INDEMNITY PROGRAM. BY TAKING THIS ACTION, PRODUCERS WOULD HAVE NO INCENTIVE TO DESTROY REACTOR CATTLE. CONSEQUENTLY, COMPLETE ERADICATION OF BRUCELLOSIS WOULD BE DOOMED TO FAILURE. BECAUSE ERADICATION IS SO VITAL TO THE CATTLE INDUSTRY, WE URGE YOU TO CONTINUE FUNDING FOR THE BRUCELLOSIS PROGRAM AT THE FY 1988 LEVEL.

ANOTHER IMPORTANT ANIMAL HEALTH PROGRAM, PSEUDORABIES, HAS BEEN MARKED FOR A 58 PERCENT REDUCTION. IT IS IMPORTANT THAT THIS PROGRAM BE FUNDED AT NO LESS THAN 1988 LEVELS. THE FY 1988 PSEUDORABIES ALLOCATIONS PROVIDED FUNDING TO INITIATE CLEANUP PROGRAMS, AS OUTLINED IN THE PROPOSED PSEUDORABIES UNIFORM METHODS AND RULES. THESE ADDITIONAL FUNDS ARE NECESSARY TO SUPPORT EXPANSION OF CONTROL/ERADICATION AND TO CONTINUE TO PROVIDE FACTUAL PSEUDORABIES INFORMATION TO THE SWINE INDUSTRY.

FOR THE THIRD CONSECUTIVE YEAR, THE ADMINISTRATION HAS CALLED FOR ZERO FUNDING FOR THE IMPORTED FIRE ANT PROGRAM AND THE NOXIOUS WEED PROGRAMS. AS IN THE PAST, WE BELIEVE THERE IS NO JUSTIFICATION FOR SUCH DRASTIC ACTION. FUNDS ARE NECESSARY TO CONTROL THESE PROBLEMS BEFORE THEY OVERTAKE AMERICAN AGRICULTURE. WE THEREFORE URGE CONGRESS TO RESTORE FUNDING TO THESE TWO PROGRAMS TO AT LEAST THE SAME LEVEL AS APPROPRIATED IN FISCAL YEAR 1988.

## GOLDEN NEMATODE

THE GOLDEN NEMATODE PROGRAM, ALSO PROPOSED FOR ELIMINATION, SHOULD BE FUNDED AT LAST YEAR'S LEVEL. THE ADMINISTRATION PROPOSES ALL APHIS PERSONNEL BE WITHDRAWN FROM THE GOLDEN NEMATODE QUARANTINE PROGRAM, EXCEPT FOR PROVIDING TECHNICAL SUPPORT. FUNDING OF RESEARCH ON RESISTANT POTATO VARIETIES WOULD ALSO BE TERMINATED. A STATE WOULD BE REQUIRED TO ASSUME ALL SURVEY AND INTRASTATE QUARANTINE RESPONSIBILITIES OR BE FACED WITH AN ENTIRE STATE FEDERAL QUARANTINE.

IT IS OBVIOUS THAT A TOTAL QUARANTINE WOULD HAVE A SERIOUS IMPACT ON A STATE'S ENTIRE AGRICULTURAL INDUSTRY. WE BELIEVE THAT ENFORCEMENT OF A TOTAL STATE QUARANTINE WOULD REQUIRE APHIS TO INCREASE FUNDING BEYOND THE MONIES PRESENTLY BUDGETED.

STATES HAVE COOPERATED WITH APHIS IN THE ENFORCEMENT OF THE NEMATODE QUARANTINE AND IN FUNDING OF RESEARCH ON RESISTANT POTATO VARIETIES. RESEARCH MUST CONTINUE SINCE BIOLOGICAL CONTROL OF THE NEMATODE, USING RESISTANT VARIETIES, IS NOW THE ONLY ACCEPTABLE MEANS OF SUPPRESSION. THE USE OF CHEMICAL TREATMENTS ARE NO LONGER ACCEPTABLE BECAUSE OF GROUNDWATER CONTAMINATION.

STATES ARE INCAPABLE OF CARRYING OUT THE REQUIRED QUARANTINE AND SURVEY ACTIVITIES OR THE NECESSARY RESEARCH PROGRAMS WITHOUT SUPPORT FROM USDA. WE URGE YOU TO CONTINUE CURRENT LEVEL FUNDING OF THE GOLDEN NEMATODE PROGRAM WHICH IS NECESSARY TO PROTECT THE AGRICULTURAL INDUSTRIES OF THE POTATO GROWING AREAS OF THIS NATION.

## NEW APHIS PROGRAM---RUSSIAN WHEAT APHID

WE STRONGLY RECOMMEND THAT APPROPRIATED FUNDS BE ALLOCATED TO APHIS FOR RESEARCH DIRECTED TOWARD ERADICATING THE RUSSIAN WHEAT APHID (RWA). THIS APHID IS A VERY SERIOUS PROBLEM, ONE FOR WHICH THERE IS NO SHORT-TERM SOLUTION AND ONE WHICH WE BELIEVE WILL BECOME A MORE SERIOUS PROBLEM THROUGHOUT THE WHEAT AND BARLEY PRODUCING STATES OF THE WEST. IF LEFT UNCONTROLLED, IT CAN VIRTUALLY DESTROY A MAJOR PART OF THE WESTERN WHEAT CROP TO THE DETRIMENT OF OUR ALREADY HARD PRESSED FARMERS. IN COLORADO ALONE, IT IS ESTIMATED THAT THE ECONOMIC IMPACT OF THE RWA EXCEEDED $26 MILLION IN 1987. LOSSES COULD EASILY HAVE EXCEEDED $60 MILLION IF INSECTICIDES HAD NOT BEEN USED.

THE RUSSIAN WHEAT APHID CANNOT BE CONTROLLED OR ERADICATED WITHOUT A MULTI-STATE RESEARCH AND EXTENSION AGENDA WHICH EMPHASIZES COST-EFFECTIVE USE OF INSECTICIDES, DEVELOPMENT OF RESISTANT PLANT VARIETIES, ADOPTION OF CULTURAL PRACTICES AND BIOLOGICAL PEST CONTROL FOR MANAGING THIS INSECT PEST.

STATE DEPARTMENTS OF AGRICULTURE, STATE UNIVERSITIES, AND OTHER AGENCIES AND ORGANIZATIONS HAVE ALREADY JOINED TOGETHER TO PREPARE A RESEARCH AND EXTENSION AGENDA TO COMBAT THE RWA. IN ADDITION, FINANCIAL SUPPORT IS BEING SOUGHT FROM STATE LEGISLATURES TO ASSIST IN MITIGATING THE DETRIMENTAL EFFECTS OF THE RWA ON THE AGRICULTURAL INDUSTRY.

WE BELIEVE THAT THE DETRIMENTAL EFFECTS ARE SERIOUS AND POTENTIALLY DEVASTING TO THE WHEAT AND BARLEY PRODUCERS OF THIS NATION, AND IT IS ESSENTIAL THAT USDA COOPERATE IN ERADICATING THIS INSECT PEST.

COOPERATIVE PROGRAMS, JOINTLY FUNDED AND JOINTLY ADMINISTERED ARE A COST-EFFECTIVE WAY OF CARRYING OUT NECESSARY GOVERNMENT PROGRAMS. THEY HAVE PROVEN SUCCESSFUL AND EFFICIENT OVER THE YEARS. WE BELIEVE THEY MUST CONTINUE ON A COOPERATIVE BASIS, AND ASK YOUR SUPPORT IN ACCOMPLISHING THIS GOAL.

## ANIMAL DAMAGE CONTROL

EVER SINCE THE ANIMAL DAMAGE CONTROL PROGRAM WAS MOVED FROM THE DEPARTMENT OF INTERIOR TO THE DEPARTMENT OF AGRICULTURE, THE ADMINISTRATION HAS PROPOSED DRASTIC REDUCTIONS IN THE FEDERAL RESPONSIBILITIES. AGAIN THIS YEAR, A 47 PERCENT REDUCTION IS PROPOSED TO ELIMINATE THE COST SHARING CONTROL OPERATIONS ON STATE AND PRIVATE LANDS. THE STATE AND LOCAL GOVERNMENTS CANNOT AFFORD TO ABSORB THE ADDITIONAL COSTS. AGRICULTURAL LOSSES CAUSED BY WILD ANIMALS CANNOT BE CONTAINED WITHOUT MAINTAINING THE RELATIVE RELATIONSHIP OF THE FEDERAL/STATE COOPERATIVE PROGRAMS. WE URGE CONGRESS TO FUND THIS IMPORTANT PROGRAM AT THE FY 1988 LEVEL.

## BOLL WEEVIL

THE ADMINISTRATION PROPOSES TO VIRTUALLY ELIMINATE FUNDING FOR BOLL WEEVIL CONTROL, INCLUDING THE TEXAS HIGH

PLAINS PROGRAM, THE SOUTHWEST ERADICATION PROGRAM AND THE EXPANDED SOUTHEAST PROGRAM. THIS COOPERATIVE PROGRAM WAS EXPANDED TO THE SOUTHEAST IN 1987 AFTER SUCCESSFUL ERADICATION OF THE BOLL WEEVIL IN NORTH AND SOUTH CAROLINA. WE BELIEVE THE FOUR-YEAR PROGRAM COULD VIRTUALLY ELIMINATE THE BOLL WEEVIL AND REVITALIZE THE COTTON INDUSTRY. PRODUCERS HAVE VOLUNTARILY ASSESSED THEMSELVES FOR THREE YEARS TO FUND 70 PERCENT OF THE ERADICATION PROGRAM WITH THE AGREEMENT THAT APHIS WOULD FUND THE REMAINING 30 PERCENT OF THE PROGRAM COSTS. BY ELIMINATING FEDERAL FUNDING, THE ADMINISTRATION EVIDENTLY ASSUMES THAT COOPERATORS WILL TAKE THE RESPONSIBILITY TO COMPLETE THE PROGRAM. IN OUR OPINION, COOPERATORS AND PRODUCERS ARE NOT FINANCIALLY ABLE TO DO SO. WE BELIEVE THIS PROGRAM, AS ORIGINALLY CONCEIVED, WILL MEET ITS OBJECTIVE IN A RELATIVELY SHORT PERIOD OF TIME. WE OPPOSE ELIMINATION OR REDUCTION OF FUNDING BEFORE THE OBJECTIVES ARE MET. FUNDING FOR THE BOLL WEEVIL PROGRAM SHOULD BE RESTORED AND FURTHER ATTEMPTS TO REDUCE FUNDING SHOULD BE WITHHELD UNTIL COMPLETION OF THE PROGRAM.

THE FOLLOWING APHIS PROGRAMS ARE ALSO SLATED FOR MAJOR FUNDING REDUCTIONS: GRASSHOPPER AND MORMON CRICKET, 64 PERCENT REDUCTION; BIOCONTROL, 23 PERCENT REDUCTION; POULTRY DISEASES, 22 PERCENT REDUCTION; AND PINK BOLLWORM 36 PERCENT REDUCTION. THESE ARE ALL IMPORTANT DOMESTIC AGRICULTURAL PROGRAMS THAT NEED TO BE FUNDED AT THE FY 1988 LEVEL.

WE SUPPORT APHIS' INTERNATIONAL PROGRAMS AND REALIZE THE IMPORTANCE OF STOPPING FOREIGN DISEASES AND PESTS BEFORE THEY ENTER THE UNITED STATES. HOWEVER, THESE INTERNATIONAL PROGRAMS SHOULD NOT BE FUNDED AT THE EXPENSE OF THE DOMESTIC AGRICULTURE PROGRAMS.

## AGRICULTURAL MARKETING SERVICE

OVER THE YEARS, THE AGRICULTURAL MARKETING SERVICE HAS IMPOSED USER FEES FOR CERTAIN SERVICES THAT BENEFIT THE PRODUCER. NASDA BELIEVES THIS PRACTICE IS JUSTIFIABLE.

HOWEVER, WE DO OPPOSE THE ADMINISTRATIONS PROPOSAL FOR THE ELIMINATION OF FUNDING FOR THE FEDERAL SEED ACT, THE WHOLESALE MARKET DEVELOPMENT PROGRAM, AND THE PAYMENTS TO STATES PROGRAM. THESE PROGRAMS ARE NECESSARY TO SUPPORT THE OVERALL BASIS OF AGRICULTURE AND HAVE ALWAYS MAINTAINED A VITAL COOPERATIVE ENDEAVOR.

WE RESPECTFULLY ASK THAT THE PAYMENTS TO STATES PROGRAM BE FUNDED IN FY 1989 AT THE SAME LEVEL AS APPROPRIATED IN FY 1988. THIS IMPORTANT MATCHING FUNDS PROGRAM SHOULD BE CONTINUED. WE URGE YOU TO RESTORE THIS PROGRAM AND GIVE CONSIDERATION IN THE FUTURE TO AN EXPANSION OF THIS PROVEN EFFECTIVE MARKETING TOOL. ANOTHER IMPORTANT PROGRAM FOR STATES IS THE WHOLESALE MARKETING DEVELOPMENT PROGRAM. AGAIN, THE ADMINISTRATION CALLS FOR NO APPROPRIATED FUNDS FOR THIS PROGRAM FROM THE STATES. WE URGE THAT CONGRESS RESTORE FUNDING FOR THIS IMPORTANT PROGRAM.

## THE FEDERAL SEED ACT

THE FEDERAL SEED ACT WAS DESIGNED IN PART TO ENSURE QUALITY AND PREVENT MISLABELING OF SEED IN INTERSTATE MOVEMENT. ELIMINATION OF THE FEDERAL SEED ACT PROGRAM WOULD PLACE THE RESPONSIBILITY FOR SEED REGULATION ON THE INDIVIDUAL STATE SEED PROGRAM.

FUNDING TO SUPPORT THE FEDERAL SEED ACT IS VITAL SINCE STATES DO NOT AND CANNOT CONTROL INTERSTATE SHIPMENTS ON SALES OF SEED. IF SEEDS DO NOT MEET PROPER STANDARDS, THE BUYER HAS NO RECOURSE OTHER THAN LITIGATION. NOT ALL STATES HAVE STRONG OR "POWERFUL REGULATORY TOOLS." THE FEDERAL SEED ACT SERVES TO BALANCE THESE DEFICIENCIES BETWEEN STATES. AS IS THE CASE WITH MANY PROGRAMS, THE FEDERAL SEED ACT SHOULD BE A STRONG BASE AND SUPPORT FOR INDIVIDUAL STATE PROGRAMS AND WHICH CAN BE USED BY THE STATES WHEN NECESSARY. MANY STATES HAVE SMALL SEED PRODUCERS THAT, BECAUSE OF THE RECOGNITION OF THE FEDERAL SEED ACT OF THE UNITED STATES, ARE ABLE TO PARTICIPATE IN AND SELL SEED IN THE INTERNATIONAL MARKET. THEY ARE ABLE TO DO SO BECAUSE THE FOREIGN COUNTRIES RECOGNIZE THE FEDERAL SEED ACT OF THE UNITED STATES AS THE DOMINANT PROGRAM.

THE CONSERVATION RESERVE PROGRAM (CRP) HAS SIGNIFICANTLY INCREASED THE PURCHASE OF SEED FROM OUT-OF-STATE PRODUCERS IN MANY STATES. COMPLAINTS ABOUT THE QUALITY AND MISLABELING OF SEED HAVE ALSO RISEN SIGNIFICANTLY. FOR THESE REASONS, WE VERY MUCH NEED FEDERAL ASSISTANCE TO ENSURE COMPLIANCE WITH THE FEDERAL SEED ACT. THEREFORE, WE URGE A COMPLETE RESTORATION OF THE $1.05 MILLION PROVIDED IN FY 1988 FOR THE FEDERAL SEED ACT.

## FOREIGN MARKET DEVELOPMENT PROGRAM

NASDA HAS BEEN COOPERATING WITH THE U.S. DEPARTMENT OF AGRICULTURE'S FOREIGN AGRICULTURAL SERVICE FOR MANY YEARS IN EXPANDING OUR OVERSEAS MARKETS. THE BIENNIAL NASDA NATIONAL FOOD AND AGRICULTURE EXPOSITION, AN EXCELLENT EXAMPLE, PROVIDES AMERICAN FOOD AND AGRICULTURAL PRODUCERS WITH A UNIQUE OPPORTUNITY TO SELL U.S. FOOD, BEVERAGE, SEED AND NURSERY PRODUCTS TO OVERSEAS BUYERS -- THUS HELPING TO REDUCE DEFICITS WITH OUR TRADING PARTNERS AND MAKING AGRICULTURE AND THE FOOD INDUSTRY IN THE U.S. MORE PROFITABLE. IT IS A PRIME EXAMPLE OF WHAT CAN BE ACCOMPLISHED THROUGH A COOPERERATIVE WORKING AGREEMENT BETWEEN AN AGENCY OF THE FEDERAL GOVERNMENT AND THE STATES. FAS HAS BEEN AN INVALUABLE PARTNER IN THIS EFFORT. WE CONTINUE TO URGE YOU TO APPROPRIATE $100 MILLION FOR THE FOREIGN AGRICULTURAL SERVICE IN FY 1989, AS WE DID IN FY 1988.

FUNDS TO SUPPORT FOREIGN MARKET DEVELOPMENT MUST BE MAINTAINED AT AN APPROPRIATE LEVEL TO ALLOW FAS TO OPERATE AND STAFF THEIR OVERSEAS OFFICES AND PROVIDE ADEQUATE RESOURCES TO MARKET COOPERATORS. THESE OFFICES MUST BE CAPABLE OF CONTINUING AND EXPANDING THEIR WORK IN MARKET RESEARCH; EFFORTS TO BREAK DOWN NON-TARIFF TRADE BARRIERS; AND PROVIDE U.S. COMPANIES WITH FOREIGN SALES LEADS. AN FAS APPROPRIATION OF $100 MILLION WOULD PROVIDE FOR AN ADEQUATE FOREIGN MARKET DEVELOPMENT PROGRAM.

OVERALL MARKET DEVELOPMENT ACTIVITIES HAVE BEEN ENHANCED BY THE TARGETED EXPORT ASSISTANCE (TEA) PROGRAM. TEA FUNDS HAVE ENABLED INCREASED EXPORT PROMOTION ACTIVITY IN AREAS WHERE U.S. COMMODITIES HAVE BEEN ADVERSELY AFFECTED BY UNFAIR TRADE PRACTICES. THE SUBSTANTIAL INCREASE PROPOSED FOR TEA WILL STRENGTHEN MARKET DEVELOPMENT ACTIVITIES. CONGRESS HAS AUTHORIZED TEA FUNDS THROUGH FY 1990. BECAUSE THIS PROGRAM HAS BEEN SO SUCCESSFUL, WE RECOMMEND IT BE REAUTHORIZED FOR A LONGER PERIOD OF TIME.

## OTHER BASIC AGRICULTURE PROGRAMS

NASDA HAS ALWAYS BEEN A STRONG SUPPORTER OF BASIC AGRICULTURAL PROGRAMS. WE STRONGLY SUPPORT A VIABLE PROGRAM IN RESEARCH AND EXTENSION, AND FEEL IT IS IMPERATIVE THAT WE STAY ON THE FOREFRONT OF TECHNOLOGY AND SCIENCE APPLIED TO AGRICULTURE.

THE ADMINISTRATION'S FY 1989 BUDGET PROPOSALS FOR SOIL AND WATER CONSERVATION PROGRAMS REFLECT THE CONTINUED ATTENTION GIVEN TO IMPLEMENTING THE PROVISIONS AUTHORIZED BY THE CONSERVATION TITLE OF THE 1985 FOOD SECURITY ACT. WHILE WE SUPPORT THIS INITIATIVE, WE DO NOT SUPPORT THE REDUCTION FOR THE WATER RESOURCE MANAGEMENT PROGRAM OR THE ELIMINATION OF THE CONSERVATION COST SHARING PROGRAMS. FUNDING FOR THESE IMPORTANT PROGRAMS SHOULD BE MAINTAINED AT THE PREVIOUS YEAR'S LEVEL.

## AQUACULTURE RESEARCH CENTERS

THE ADMINISTRATION HAS PROPOSED TO ELIMINATE FUNDING FOR AQUACULTURE RESEARCH CENTERS. THE ESTABLISHMENT OF AQUACULTURE RESEARCH CENTERS ARE NECESSARY TO PROVIDE THE BASIS FOR TECHNOLOGY ADVANCES AND EDUCATION FOR EXPANSION INTO DIVERSIFICATION BY AMERICAN FARMERS. AQUACULTURE MAY PROVIDE A VIABLE MEANS OF DIVERSIFICATION NECESSARY TO MAINTAIN SUFFICIENT AGRICULTURAL INCOME. NASDA SUPPORTS THE RESEARCH CENTERS AND BELIEVES FUNDING SHOULD BE RESTORED TO ALLOW THE CENTER TO BECOME OPERATIONAL.

## CONCLUSION

IN CONCLUSION MR. CHAIRMAN, WE FEEL AGRICULTURE HAS STARTED TO TURN THE CORNER AND IS ON THE WAY TO RECOVERY. THE AGRICULTURAL ECONOMY HAS BEGUN TO STABILIZE, AND IN SOME SIGNIFICANT ASPECTS, RECOVER FROM THE UNFAVORABLE TRENDS OF RECENT YEARS. FARM DEBT LEVELS ARE BEING REDUCED, AND LAND VALUES HAVE STABILIZED OR INCREASED IN MANY AREAS. HOWEVER, TROUBLE SPOTS REMAIN. NOW IS NOT THE TIME TO REDUCE OR ELIMINATE PROGRAMS THAT ARE NECESSARY TO KEEP AGRICULTURE ON THE RIGHT TRACK. AS WE HAVE STATED MANY TIMES BEFORE, WE BELIEVE IN REDUCED FEDERAL EXPENDITURES AND A BALANCED BUDGET. HOWEVER, IT IS IMPERATIVE THAT CONTINUITY OF PROGRAMS THAT ARE BASIC TO AGRICULTURE BE MAINTAINED, AND THE RELATIVE RELATIONSHIP OF THE VITAL COST-SHARING PROGRAMS NOT BE DISTURBED.

## FDA CONTRACT WITH STATES

SINCE 1973, THE FOOD AND DRUG ADMINISTRATION HAS CONTRACTED WITH STATE DEPARTMENTS OF AGRICULTURE AND OTHER STATE AGENCIES FOR THE PERFORMANCE OF FOOD, FEED AND MEDICAL EQUIPMENT INSPECTIONS BY STATE PERSONNEL. THIS ARRANGEMENT SAVES TAX DOLLARS BECAUSE IT PERMITS A MORE EFFICIENT USE OF STATE INSPECTORS AND REDUCES FDA PERSONNEL COSTS. FDA CONTRACTS WITH STATES ARE FUNDED THROUGH THE AGENCY'S FIELD OPERATIONS BUDGET. THE 1988 ALLOCATION FOR THIS IMPORTANT PROGRAM WAS $4.5 MILLION. WE RESPECTFULLY REQUEST THAT NO LESS THAN $4.5 MILLION BE APPROPRIATED IN FY 1989.

## LETTER FROM JAMES B. GRANT

April 27, 1988

Honorable Quentin N. Burdick
Chairman
Subcommittee on Agriculture, Rural
Development and Related Agencies
Committee on Appropriations
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

At the request of Senator Thad Cochran, I am enclosing additional information on the problems now facing many states in regard to the Russian Wheat Aphid.

As you will see, the Russian Wheat Aphid currently is creating economic hardships in many states. The problem will undoubtedly get worse if more funds are not available to combat this pest. Many states are doing their best to eliminate the Russian Wheat Aphid, but it is evident that federal funds and technical assistance are necessary to cooperatively solve this problem.

We urge the Committee to provide sufficient monies in the FY 1989 Department of Agriculture budget to allow us to find a method of eradicating the Russian Wheat Aphid.

Thank you for permitting me to testify before the Subcommittee on April 26 and for allowing this supplemental material to become part of the hearing record.

Sincerely,

James B. Grant
Executive Secretary

## MEMO FROM DON ROLSTON, COMMISSIONER, WYOMING DEPARTMENT OF AGRICULTURE

TO: James B. Grant, Executive Secretary, National Association of State Departments of Agriculture — March 30, 1988

FROM: Don Rolston, Commissioner Don Rolston

SUBJECT: Russian Wheat Aphid Technical Task Force

Close to ninety people met in Denver, Colorado, March 23 to discuss developing a coordinated program for control of the Russian Wheat Aphid. The group came from seventeen states and Saskatchewan representing Departments of Agriculture, Universities, and Producers, in addition to representatives from APHIS, ARS, ASCS, and six chemical companies. It was basically agreed to form a network of producers, industry, and federal, state and regional agencies to try to get money commitments and come up with a workable solution to the aphid problem. Dr. Dale Meyerdirk, APHIS, USDA, has agreed to chair the committee and make initial contacts with the various groups to develop a technical action committee.

I am asking that NASDA serve as the organizational association and take the leadership role in bringing the working group together. J. B., I would also ask you to contact Dale Meyerdirk as far as the key agencies and organizations and potential names that could serve on the committee including ARS, APHIS, CSRS, experiment stations, extension, departments of agriculture and other related or interested groups. Dale's phone number is 301-436-7851.

Peter Decker and I will work on language requesting funding from Congress for a 5-7 year period.

Attendance at this meeting indicates the concern states have in the West and the negative economic impact it could have to our small grain producers. This has become truly a multi-state and multi-discipline program and, hopefully, will result in a far-reaching task force that will have a benefit back to our producers.

Thank you for your support in this area.

DR:sw

cc: Mr. Tom Ballow, President, NASDA
Mr. Peter Decker, Commissioner of Agriculture, Colorado
Dr. Dale Meyerdirk, APHIS, USDA

# RUSSIAN WHEAT APHID MEETING

Denver Marriott City Center
Denver, Colorado

March 23, 1988 - 1:30 p.m.

## MINUTES

Ed Anderson, Assistant Commissioner, Wyoming Department of Agriculture called the meeting to order at 1:30 p.m. He welcomed everyone and briefly made a statement of his first involvement with Russian wheat aphid. He than introduced Don Rolston, Commissioner, Wyoming Department of Agriculture.

Mr. Rolston stated that this meeting resulted from a meeting of several Commissioners in Boise, Idaho, last fall where he and Peter Decker, Commissioner of the Colorado Department of Agriculture, talked about the problem of the Russian wheat aphid, and it was decided to hold this meeting in Denver in conjunction with the Entomological Society meeting.

He stated that the purpose of this meeting was to try to form a network of producers, industry, and federal, state and regional agencies to try to get money commitments and to come up with a workable solution to the Russian wheat aphid problem.

Dr. Dale Meyerdirk, Biological Control Specialist for APHIS in Hyattsville, Maryland, was then introduced.

Dr. Meyerdirk reported on the efforts of APHIS to develop a biological control program, but funds were not available. Arrangements have been made with Dr. Eastop from the British Museum to search for biological pest control agents in Europe. ARS and APHIS finally got $40,000 to carry out the project, but were not allowed entry into Russia. They will now go into Turkey. The collected materials, when screened and cultured at Texas A & M, will go to cooperators in late 1988 or 1989.

Next year, if money is available and if entry is allowed, they would go into Russia with CICB contacts and make collections. Or they would go to Iran or Afghanistan.

He also discussed the potential of the predators C-7, P-14 and HV and what impact they might have on the RWA. He stated that Tom Burger of Niles, Michigan, had some evaluation reports for the Departments of Agriculture.

He said that a baseline program should be developed at this meeting. APHIS does not have money for 1989 but will try for money for 1990.

Bill Warren, member of the Colorado Department of Agriculture Agricultural Commission and President of the Colorado Wheat Growers Association, reported that they were looking for a short term solution, which right now is the chemical DiSyston. He also reported that Dr. Frank Peairs of Colorado State University has done some research on Lorsban. He reported that legislators in Washington, DC had been approached for federal assistance, and $269,000 was committed for this project by the Colorado legislators. He stated that coordination between the states was needed to avoid duplicating of efforts.

Keith Pike of Washington State University reviewed the problems in the Pacific Northwest and what had been done and of their plans.

Lloyd Knutson of USDA, ARS, in Beltsville, Maryland, reported that he and others had met with Secretary of Agriculture Lyng. He said that ARS has $15,000 to help CICB. They also had $15,000 to enhance the program at the European Parasite Laboratory. He went on to tell of several different studies on the RWA.

Mike Gray, representing ARS in South Dakota, South Dakota State University and the University of Illinois, reported on some research that had been done by wheat researchers in South Dakota and passed out a paper on the research studies.

Gary Heinz of South Dakota, now in Scottsbluff, Nebraska, reported that there were plans to develop a research program in Nebraska.

Tom Holtzer of the University of Nebraska stated he was more interested in a long term program and in establishing a western regional committee for long term research, and he would like to be involved in it.

Jerry Michaels of the Texas Agricultural Experiment Station reported on their research and that they were working on comparing RWA with other aphids.

Susan Halbert of the University of Idaho reported on the work they had been doing and passed out papers explaining their research.

Ed Anderson stated that an information network was needed so that everyone involved could be kept informed.

Dr. Frank Peairs of Colorado State University stated that he put out a newsletter called "Russian Wheat Aphid News." It is an informational exchange and there were no restrictions on the circulation. The trouble was getting recipients to contribute to the newsletter. It was decided that anyone wanting to contribute could, and Dr. Peairs would add anyone to his mailing list who wished to be on it. It was suggested that the publication be sent to key people from each organization and they, in turn, distribute it.

The meeting was turned over to Don Rolston. He said that a lot of states and groups of states were doing some work, but it was now time to agree upon how to put everything together. The thing that should be done is go after dollars.

He asked Dr. Meyerdirk if he would get things going to keep the lines of communication open and try to see that dollars come in. He said that APHIS was the key agency and asked if Dr. Meyerdirk would get an action group together and if he would be chairman. Dr. Meyerdirk agreed to chair the committee and make contacts with wheat commissions, producers, industry, and state, federal and regional agencies to put the committee together.

Dr. Tom Burger suggested that each agency look into who would be the best representative.

Representatives present from the chemical industry will contact NACA to appoint a representative to the committee.

Ed Anderson suggested the committee should consist of only about 12 people. Dr. Meyerdirk said that he had about 10 that he could pull together. He agreed it should not go over 12 or 13 people.

Dr. Meyerdirk asked for suggestions on what the key objectives of the committee should be. The suggestions were: budget; program priority; different program components, such as immediate, intermediate and long range plans; and standardized sampling procedures throughout the states.

Don Rolston adjourned the meeting at 4:10 p.m.

The attendance list and list of speakers are hereby attached to and made a part of these minutes.

# RUSSIAN WHEAT APHID CONTROL: A PROPOSAL REPORT OF THE RUSSIAN WHEAT APHID TASK FORCE

## EXECUTIVE SUMMARY

The Colorado Emergency Russian Wheat Aphid (RWA) Task Force has developed a proposal seeking state financial assistance in mitigating the detrimental effects of the Russian Wheat Aphid on Colorado's agricultural industry and the state's economy. The RWA has only recently established itself in Colorado, yet it has created an economic crisis amounting to $26 million alone in the 1987 growing season. The Colorado Department of Agriculture (CDA), Colorado State University (CSU) and several other agencies and organizations have prepared a research and extension agenda which emphasizes cost-effective use of insecticides, development of resistant plant varieties, adoption of cultural practices and biological pest control for managing this insect pest. A FY 1987-88 supplemental appropriation from the Colorado General Assembly of $269,800 is requested to immediately implement a statewide RWA control program. Additionally, ongoing state financial support of $406,000 is requested for continuing the program initiated under this supplemental request beginning in FY 1988-89.

## JUSTIFICATION

Since the discovery of the Russian Wheat Aphid in Colorado in 1986, numerous individuals and organizations have been monitoring its movement through the wheat growing areas of the state. It has become apparent that a very serious problem exists. This recently introduced agricultural pest poses a serious economic threat to Colorado's wheat and barley industry, to agriculture in general and to the states overall economy.

The RWA was first detected in Texas in March, 1986 and was found in many Southeast Colorado wheat fields in April of the same year. Infestations spread rapidly throughout the Eastcentral Plains and had reached Northeast Colorado by mid-summer. The economic impact of this regional pest is presented in Appendix 1.

Although the aphid has only recently invaded Colorado and not yet fully established itself in terms of population density and geographic distribution, it has already seriously impacted Colorado's agricultural industry (see Attachments 2 and 3). The total losses and costs to the wheat industry in 1986 were calculated at over $13 million using an estimate of 5 million bushels lost and 90,000 acres treated. In 1987 the bushel loss estimate has been set at 5-7 million bushels by the CWAC, while acres treated increased to 1-2 million. Using a $2.50/bu wheat price and an $8.00/acre treatment cost, the 1987 impact of this pest on the Colorado wheat industry was between $20.5

million and $27.1 million. It is estimated that losses could easily have exceeded $60 million if insecticides had not been used (see Attachment A).

Wheat is the state's leading cash crop and is also the state's number one export by dollar value. Needless to say, the aphid threatens the livelihood of the state's 14,000 wheat producers. Incomes of Colorado wheat producers can be enhanced significantly if cost effective methods of combating the RWA are found. Economical control of the aphid can be achieved by combining biological control, resistant plant varieties and when necessary, insecticide treatments. Short-term aphid management practices will emphasize cost-effective use of insecticides. Long-term research may result in resistant plant varieties or biological control agents that, in many cases, are effective enough to replace the need for insecticides.

The RWA has also been found to significantly affect Colorado's malting barley production (see Attachment 5). Malt barley producers lost an estimated $1,053,592 in 1987. The effect on the state's 170,100 acres of feed barley has not yet been calculated.

In addition to damaging small grains, the aphid also serves as a vector for several small grain diseases, including Barley Yellow Dwarf (BYD).

With nearly 1 million acres sprayed at least once last year for the RWA, there are important biological and environmental implications which must be considered. For example, much of the decline in pheasant populations from 1986 to 1987 is being attributed to RWA treatments. Additionally, pronhorn antelope may also be inpacted. Beneficial non-target insect species and water quality may also be significantly impacted. Also, a majority of the acreage was treated with a single chemical, disulfoton, making the rapid development of RWA disulfoton - resistant populations a very real possibility. There are currently no other registered insecticides as effective as disulfoton.

The CSU Agricultural Experiment Station and Cooperative Extension, in cooperation with affected industries, have the following activities currently underway: 1) A suction trap network has been developed to monitor the occurrence and spread of the pest. Resources to obtain suction traps were provided by the wheat industry. Due to the rapid spread of this pest to a large diverse geographic area, this program needs to be expanded; and, 2) Research is underway on chemical control, identification of resistant varieties and bio-control. Little or no research is underway regarding cultural control methods. Current level of activity is being met through redirection of existing resources but existing resources are inadequate to develop the level of activity within the time-frame required.

Due to the severity of the RWA problem, the Colorado Department of Agriculture convened a RWA Emergency Task Force in November, 1987. The purpose of this task force was: 1) to develop the best documentation possible regarding the impact of the RWA on Colorado agriculture, and 2) to clarify and refine plans of CSU, CDA, and industry groups for addressing the RWA problem.

The presence of the RWA in Colorado has created a situation that borders on a crisis condition. The economic impact on Colorado's third largest industry, agriculture, is staggering. In turn, the state's overall economy is threatened. The purpose of this proposal is to seek financial assistance from the State of Colorado in order to mitigate the detrimental effects of the RWA on small grains in the major wheat and barley production areas of the state.

The RWA Emergency Task Force has developed a research and extension proposal to speed the development of an effective RWA management program. Funds are the limiting factor in implementing this initiative.

The agricultural organizations represented on the RWA Emergency Task Force cannot express too strongly their concerns for the present and long term consequences of the RWA on small grain production in Colorado. The remainder of this report presents the findings and recommendations of this task force concerning what needs to be done, when and how it will be done, and resources needed to implement an effective control program. Prompt state attention to this issue is a necessity.

## ASSOCIATION OF SYSTEMATICS COLLECTIONS

### STATEMENT OF DR. WILLIAM F. GIMPEL, JR., CHIEF, PLANT PROTECTION SECTION, MARYLAND DEPARTMENT OF AGRICULTURE

Senator COCHRAN. The last witness on our agenda today is Dr. William Gimpel, who is chief, Plant Protection Section, Maryland Department of Agriculture. He is here representing the Association of Systematics Collections.

Welcome.

Dr. GIMPEL. Mr. Chairman, my name is Bill Gimpel. I work for the State of Maryland Department of Agriculture. My work involves the detection, risk assessment, and management of agriculturally important insect, plant diseases, and other organisms.

As I am sure you are aware, all of the 49 States have similar programs to investigate these crop problems.

I am here today on behalf of the Association of Systematics Collections, a group that is interested not only in insects but in fungi, nematodes, and all of the pests that affect agriculture.

I am also here representing the National Plant Board and the National Association of State Departments of Agriculture.

Each State has their own resources in terms of their ability to identify what pests come in. Those abilities range, on a scale from 1 to 10.

Each of States, regardless of how good they are, require backup. They require reference libraries, the final authority, if you will.

In addition to the State responsibilities, I am sure you are aware that agricultural quarantine is the Federal responsibility at ports of entry.

Our concerns today relate to the funding within the Agricultural Research Service for, specifically, the Systematic Entomology Laboratory, one of 55 labs at the Beltsville Agricultural Research Center.

The mission of that laboratory is to conduct taxonomic research on insects and mites of importance to agriculture, to provide identifications and associated information, to organize taxonomic information into a readily available form, and to curate portions of the National Collection of Insects housed at the Smithsonian.

The Systematic Entomology Laboratory or its predecessors have been doing this kind of work for over 100 years—the old Bureau of Entomology at the Smithsonian. The efforts of this group are vital to the detection and quarantine and management of insect pests.

A few aspects of basic research: You have heard Mr. Grant mention the Russian wheat aphid, or if we are talking about any one of these other insects, we have got to know what they are and what they are doing for a living, and what consequences will occur with their presence.

The importance of the lab goes to providing services to State and Federal agencies, as I have mentioned, to private industry, to university research programs in integrated pest management, biological control programs, to the Extension Service to provide identifications back to the private citizens.

I might add that the 25 scientists—we are down to 25 scientists at the laboratory now—have a real "can-do" spirit. As an example, I will leave this publication with the committee when I leave. This is the monograph that covers the coccinella beetles, the ladybird beetles, ladybugs, of America and most of Mexico. I might add that it took a number of years to put that document together. And the person who did that, because of the lack of funding within the organization, spent $4,000 out of his own pocket to put that together. That is an example of the "can-do" spirit.

The Russian wheat aphid that was just mentioned, in fact, was only detected in March 1986, in Texas. I think in just a matter of hours, the researcher at the Systematic Entomology Laboratory notified the Federal officials and the States involved and within a matter of 8 months presented a key to separate it from the other 13 species that occur on grains, at a national meeting in Reno, NV.

The Laboratory did not have sufficient funds to publish that key and associated information. That funding came from three independent sources. I believe they were three different States.

The Russian wheat aphid is a continuing problem. We have one species in Mexico which we know about, which is closely related, and more work needs to be done to separate that from the species here. We have another one in Canada that we know nothing about, and one in Europe.

Over the past 4 years, the Systematic Entomology Laboratory has lost scientific positions. The ARS position, as I understand it, is that when we have retirements that money would be going back into operating funds.

The bottom line today is that that laboratory has funding at about $76,000 per scientist. I think you know, Senator, the ARS average is over $150,000. The disposable or discretionary funds that those scientists have available this year is a little greater than last year; last year it was $1,500, this year it is $4,000. But that has to cover everything that individual does, in terms of publications and travel and field work, and so forth.

The laboratory right now, with these 25 scientists, is down to 4.1 technicians. The scientists have to do their own technical work, or wait every 5 years to have a technician for assistance.

To make it brief, what happens if we don't fund this? We have a citrus canker problem in Florida that I am sure you are aware of, Senator. If we had good information right off the shoot as to what organism we were dealing with, we would not have spent the millions and millions and millions of dollars we did in Florida trying to eradicate citrus canker. I am not assessing blame; I am just saying that, if we had the expertise, we wouldn't be in the situation we are today.

Today, because of retirements, we don't have expertise in the plant-feeding mites; we don't have expertise in the immature caterpillars, the *lepidopterous florvey*.

Last, I would like to mention that we don't have expertise in a group of insects called leaf-hoppers. I have a box that I will share with you. I need it back, but I will bring it up. It essentially has insect specimens, on the left, that occur in various States represented by this committee. On the right are specimens that do not occur in the United States. I am sure you can see by their size that it takes a real expert to determine the difference between one species and another.

Senator, if we don't know which species we are dealing with, we could have the introduction, as we did with the Russian wheat aphid, the rapid dissemination of that pest, and a catastrophe in terms of U.S. agriculture.

These leaf-hoppers are vectors of very serious virus diseases of corn and soybeans, and other crops, that we don't have in the United States at the present time. There are over 100,000 species of leaf-hoppers, and they feed on beans, cotton, and I have mentioned corn and soybeans, and other agronomically important pests.

Mr. Chairman, I would like to urge Congress to provide an additional $2 million in permanent funds to the Laboratory, so that they can fill vacant scientific positions, provide adequate operating funds for their scientists, technicians, and so forth.

At this time I would be happy to try to answer any questions you might have.

Senator **Cochran**. Who do you get to write this information so small that it gets on the card?

Dr. **Gimpel**. One of the interview questions for the technician is to look at their penmanship. They use obviously a very small pen. [Laughter.]

Senator **Cochran**. Well, I am impressed with the seriousness of the problem which you describe. I hope that we can somehow find a way to provide the needed funds to deal with the problem of staffing and support for entomology laboratories.

As I understand it, what we need is simply more money.

Dr. **Gimpel**. More money.

Senator **Cochran**. You are talking about an additional $2,200,000, according to this statement, for base funds to bring the laboratory up to the level of the funding of other ARS laboratories.

Dr. **Gimpel**. Yes, sir.

Senator **Cochran**. That is the key sentence.

Dr. **Gimpel**. That is the bottom line.

Senator **Cochran**. Your testimony has been interesting and enlightening, and I appreciate your taking time to come here and talk to us about the practical aspect of identification and dissemination of information from the laboratory. This is very helpful to us. I wish every member of the committee could be here to see your documentary evidence.

Dr. **Gimpel**. Mr. Chairman, if it would help, I do need those specimens back to go into the Smithsonian collection again, but I would be happy to leave them here for a short period of time.

Senator **Cochran**. I am not sure I could get everybody to come by and look at it, but we will tell them about it. Your testimony, of course, will be in the record, and we will try to be helpful in this area.

Thanks a lot for being here.

Dr. **Gimpel**. I appreciate your concerns and efforts.

[The statement follows:]

## STATEMENT OF DR. WILLIAM F. GIMPEL, JR.

My name is William F. Gimpel, Jr. I am Chief of the Plant Protection Section in the Division of Plant Industries and Resource Conservation of the Maryland Department of Agriculture. I am testifying on behalf of the National Plant Board and The National Association of State Departments of Agriculture as well as the Association of Systematics Collections. I am here to draw your attention to a potential national disaster that is in the making at the Beltsville Agricultural Research Center. We are witnessing the unprecedented deterioration of the Agricultural Research Service's critical capabilities in providing identification services of insects, mites, vascular plants, fungi, nematodes, and parasitic worms. The situation is already having serious negative impact on the regulatory, research, and service needs of U.S. citizens.

As an example, over the past four years, within the Systematic Entomology Laboratory at Beltsville, the American public has lost its ability to receive authoritative identifications of leafhoppers and plant-feeding mites and has much-reduced capability in receiving identifications of moth caterpillars and many forest dwelling beetles. Because of budget cuts coupled with inflation, scientific positions in the Laboratory have not been filled after retirements.

The current path will lead to further deterioration of this situation and serious trouble for the future. Let's use leafhoppers and plant feeding mites as an example. Both of these groups cause major economic damage in agricultural crop systems by their direct feeding damage and by serving as vectors of plant diseases. Imagine the consequences of confusing a newly introduced leafhopper or plant-feeding mite with one that is common throughout the country. An incorrect identification would allow the pest to become well established and to expand its range before control strategies were deemed appropriate; whereas, a correct identification would allow rapid detection and possible eradication. Similar problems could arise if mistakes were made at U.S. ports of entry. APHIS/PPQ makes heavy use of the expertise of the systematists at Beltsville. In the Systematic Entomology Laboratory alone nearly 50,000 insect and mite specimens are identified each year for Federal quarantine programs. A simple mistake in identification could allow a new pest to become established in the U.S. and could cause loss of millions or billions of the taxpayer's dollars.

A case in point is the Systematic Entomology Laboratory's role in the detection of the recently introduced Russian wheat aphid. The species was first collected in Texas in March of 1986 and was sent to the Laboratory for determination. It was quickly identified and APHIS was immediately informed of the existence of the pest within U.S. borders. A research paper was written by a Laboratory scientist on the identification of the Russian wheat aphid and the other aphid species that colonize wheat and barley so that detection, control strategies, and other research would be facilitated. Taxonomic research on possible biotypes of the Russian wheat aphid and on the potential biological control agents will be essential components of finding solutions to controlling this important pest.

The citrus canker problem in Florida illustrates what can happen when correct identifications are not available. It has now been determined that the strain of canker that was believed to have been introduced to Florida actually is native to the state or at least is widespread in the area. Therefore, millions of dollars were spent and many citrus groves were destroyed needlessly because the initial identification of the pathogen was incorrect. There are many other examples of similar problems that could have been averted if the proper taxonomic knowledge had been applied.

My interest in systematics at Beltsville is representative of the other states in the National Plant Board and many other user groups, and the citizens they serve, throughout the country. The Division of Plant Industries and Resource Conservation in the Maryland Department of Agriculture is involved in many different regulatory functions and activities. We depend on the fact that the organisms encountered in our programs are properly identified and therefore, that the information reported in earlier research about these species is applicable to Maryland's number one industry - agriculture. Maryland maintains a synoptic collection of the organisms that impinge on our programs. By using this reference collection we satisfy many of our identification needs and those of other Maryland agriculturalists. However, in critical situations, such as when we are asked to identify an exotic species that isn't represented in the collection, or when we need to confirm the identity of a pest of quarantine significance, we rely heavily on the taxonomists in the Systematic Entomology Laboratory. A similar situation exists in each of the other state members of the National Plant Board.

The systematic Entomology Laboratory has the resources of one of the largest collections in the world, and because their services encompass insects from around the globe, we draw heavily on their broad expertise. We simply cannot do without this service, and we cannot afford to have it reduced. A case in point is that we currently are unable to get help with leafhoppers. What would happen if a new leafhopper was accidentally introduced into Mississippi? To demonstrate the possibility of such an occurrence, I have brought a box of pinned leafhoppers for you to examine. The ones on the left side are species that occur in Mississippi, the ones on the right are two species that are major pests of beans and other legumes in Mexico and Central and South America but do not occur in the United States. I think you can see from the outward similarity of these insects that it would take an expert to distinguish the species on the right from those on the left. With the most recent retirement of scientists in the Systematic Entomology Laboratory, we are unable to learn the identity of newly introduced leafhoppers, where they might have come from, what crops they feeds on, what biological control agents might be used to control them, and other critical taxonomic information.

It is obvious to me that if this Laboratory and the other systematic organizations at Beltsville continue to deteriorate, we in the state of Maryland and in states throughout the country, have a major problem.

The importance of the Beltsville systematic program is not restricted to identification services. Taxonomic research is a well known and critical component of the overall ARS emphasis on finding solutions to agricultural problems. Approaches range from development of expert computer systems for identifications to use of molecular techniques in distinguishing similar species.

A third area of emphasis is generally poorly understood, i.e. collection development and curation. The Beltsville Area has full responsibility for collections of fungi, seeds, nematodes, parasitic worms, and the herbarium at the U.S. National Arboretum and assists the Smithsonian Institution with curation of the National Insect Collection which contains more than 30,000,000 specimens. The importance of these collections cannot be overstated. As with other collections throughout the nation, these facilities are irreplaceable national treasures that provide the essential reference foundation for most biological research. Collections cannot remain static but must grow so that they can continue to support the needs for current and future thrusts in biotechnology, germplasm discovery and exploitation, biological control, biological diversity, ecology, pest management, conservation, acid rain, and others.

I briefly would like to discuss specific staffing and funding problems and will suggest a possible solution. I will use the Systematic Entomology Laboratory as an example since it has the most significant and pressing problems of the taxonomic units at Beltsville.

The level of funding for each scientist in the Agricultural Research Service averages about $150,000. In the Systematic Entomology Laboratory the figure for FY88 is about $76,000 or, approximately half of the ARS average. The Laboratory currently has one technician for each five scientists. The result is that for most of the year scientists are doing their own collection curation and preparation of specimens. They are doing considerable technician-type work. Funds would be better spent by providing less costly support to complete the technical aspects of the research and allowing the scientists to do the work requiring their more sophisticated expertise. Available discretionary funds for each SEL scientist averages about $4,000 per year. Funding at this level does not cover the cost of supplies and publications let alone such essential items as equipment, field research, and presentation of research results at scientific meetings.

Things don't look any better for the future. From FY87 to FY88 two scientific positions were lost due to attrition; two and a half technicians and one clerk typist also were lost. In funding, $16,000 was moved from the Systematic Entomology Laboratory to a better-funded Laboratory to support a technician. If this trend continues for the next two years, anticipated retirements will deprive the American public of services and research capability in beetle larvae, leaf beetles, seed weevils, and grain beetles. These all are important agricultural groups.

My specific solution for the Systematic Entomology Laboratory is to provide an additional $2,200,000 of base funds to bring it to the level of funding of other ARS Laboratories. This would allow the Laboratory to fill the positions that were lost over the past four years, would provide adequate technical and clerical support, and would give sufficient funds so that the Laboratory could provide better identification services, and could be more productive in producing more research and in improving larger areas of the collection.

Specific funding needs for other systematic laboratories at Beltsville also must be addressed. Over the past two decades, the capacity of ARS to provide taxonomic support for the plant germplasm and weed control programs has been reduced through attrition from twelve to six. The fungi are emerging as important agents in biological control in addition to their traditional role as casual agents of plant diseases, and yet there are only four taxonomic specialists in ARS to deal with fungi, a very large and complex group of organisms. In nematology with the ever decreasing ability of our farmers to use fumigants and other nematicides, it is becoming increasingly critical that we understand the taxonomy of this important group of plant pests. Yet ARS currently has only two nematode systematists. Worms that parasitize man, livestock, and poultry also are relegated to only two taxonomic specialists. Clearly, we are doing ourselves a major disservice by reducing our capability to receive taxonomic information at a time when the demand for such services is increasing. Progress in solving major agricultural problems is hindered by our lack of taxonomic knowledge of these organisms. We must act soon or major problems will be our legacy to the future.

As I am sure you are aware, this is not an isolated, personal plea. I am here specifically to represent the views of the National Plant Board, the National Association of State Departments of Agriculture and the Association of Systematics Collections. But, concern about this issue is much broader than within these organizations. In 1987 alone, I know of statements written to Congress from individuals or organizations from 23 states; and certainly, I am not aware of all of them. This included resolutions from several organizations such as the National Plant Board and the National Association for State Departments of Agriculture; letters from directors of experiment stations, department heads, university presidents, the Governor of Hawaii, vice presidents of chemical corporations, pest control companies, pest management consultants, and concerned individuals. The problem is a real one!!!! and it is affecting the well-being of a wide range of U.S. citizens.

Thank you for allowing me the opportunity to express my concerns about this important issue.

## SUMMARY OF AN UPDATED SITUATION REPORT ON THE SYSTEMATIC ENTOMOLOGY LABORATORY, USDA

The FY 88 budget of the Systematic Entomology Laboratory (SEL) is inadequate, lower than that for FY 87, and there is no immediate possibility of increased funding from within the Agricultural Research Service.

For over 100 years, the Systematic Entomology Laboratory has been a principal national source for taxonomic research, identifications and related services concerning insects and mites. Its efforts are vital to the detection, quarantine, and management of insect pests, and to many aspects of basic research. Its users include private industry, federal and state agencies, university research programs, integrated pest management programs, the Extension Service, foreign organizations, and the general public. Between 1983 and 1987, for example, more than 800,000 specimens were identified and pertinent information provided to users.

Shrinking budgets and inflation over the past few years have reduced the SEL's funding per scientist to about half the Agricultural Research Service average. Under USDA policy, the remedy is elimination of scientific positions, using the savings to support the remaining scientists. Positions already lost through retirement include experts in such economically important groups as moth caterpillars, plant-feeding mites, and plant hoppers. At current funding levels, we may estimate an eventual reduction to 14 scientists from 29 in 1986. This would reduce the SEL's vital services to an unacceptable, skeleton level.

The permanent addition of two million dollars to the Systematic Entomology Laboratory budget is necessary to fill vacant scientific positions and provide enough operating funds for the laboratory to function effectively.

### INTRODUCTION

The Systematic Entomology Laboratory (SEL) is the Federal Government's only broad-spectrum research and information service for insects and mites, of which there may be as many as 30 million species. There are only two other such units in the world, one in Canada and one in England. The SEL provides insect identifications and related services, including comprehensive research publications, to a national and international constituency. Its efforts are vital to the detection, quarantine, and management of insect pests, and to many aspects of basic science. It provides a final backup for analogous services at the state and local level, and plays a major role in maintenance of the National Collection of Insects.

Over the past few years, this unique national service has been seriously jeopardized by budget cuts and inflation. Several scientific positions have already been lost; the current funding level is still inadequate to support the remaining scientists, and projects to a reduction from 29 scientists in 1986 to 14 within several years. Because we think this decline would reduce the SEL's services to an unacceptable, skeleton level, we have over the past year launched an effort to convince Congress, and the Agricultural Research Service, that the SEL's importance mandates full funding at its current size. We are contacting you because you or your organization have benefited directly or indirectly from the SEL's work and are in a position to help.

## THE SYSTEMATIC ENTOMOLOGY LABORATORY: AN OVERVIEW

### Mission:

The mission of the Systematic Entomology Laboratory is to conduct taxonomic research on insects and mites of importance to U.S. Agriculture; to provide identifications and associated information; to organize taxonomic information into a readily available form; and to curate portions of the National Collection of Insects.

### Staff and Coverage:

In 1987, the Laboratory employed 25.4 scientists, down from 29 in 1986 (see Appendix 1). Their collective expertise covers most of the major agriculturally important groups of insects (Appendix 1), though recent loss of positions has left gaps in planthoppers and leafhoppers, plant-attacking mites, moth caterpillars, and wood-boring beetles.

### Research and Services Provided:

The contributions of the laboratory are diverse, and benefit a broad array of organizations and individuals. The source of these services may go unrecognized by the ultimate recipient, as when an insect identification provided by an Extension specialist to private industry is based on consultation with or publications by the Laboratory.

### Identifications and related services:

The Systematic Entomology Laboratory provides an enormous number of insect identifications, to a user community including state and federal agriculture, health and defense agencies, private industry, university researchers, and even foreign institutions (see Appendix 2,3). Between 1983 and 1987, for example, over 120,000 identifications were provided, based on examination of over 800,000 specimens. Most of these identifications included not only the correct name of the species, but also information on its distribution, biology, and potential economic impact, along with references to relevant literature.

The Laboratory is also an early warning system for newly-introduced, potential pest species. Between 1980 and 1987, for example, the SEL discovered over 70 such introductions, including mites, fruit flies, cockroaches, cutworms, etc., in material submitted for identification and through field collections by SEL scientists. Early detection of newly-introduced pests, by allowing early suppression, can save billions of dollars in future pest damage and control costs.

Research - publications - and related services:

The accuracy of the identifications and related information provided to the SEL's users depends on the state of knowledge of the group of insects or mites in question, which in many cases is very incomplete. The SEL's research, which consists primarily of comprehensive analyses of insect and mite groups that include agricultural pests, is thus essential to its mission. Moreover, the results of SEL research are commonly compiled into manuals, handbooks, etc., which find daily service in the SEL's user community. A sampling of the SEL's diversity of recent research and publication projects is given in Appendix 4. Over the past 10 years, productivity in the SEL has averaged more than three publications and 60 published pages per scientist per year. SEL scientists have also taken leading roles in scientific societies and other aspects of the scientific community.

## FINANCIAL PLIGHT OF THE SYSTEMATIC ENTOMOLOGY LABORATORY

Over the past several years, budget cuts and inflation have reduced the Laboratory's total funding per scientist to about $76,000, about half the average support for the Agricultural Research Service's 2600 scientists. This level of funding has resulted in several adverse consequences:

1. Technical support is minimal. There is only one technician for every five scientists. Three laboratory locations share 2.5 clerical positions. And there is only one data entry clerk to assist the scientists and look after an extensive computer system. The scientists must therefore divert much of their research time to clerical and technical tasks, including computer maintenance.

2. Research expenses cannot be covered. In fiscal year 1987, each scientist had only $1500 in discretionary funds to cover travel, equipment, supplies, and publication expenses. The latter alone normally average about $2,000 / year. Many scientists have often been forced to spend their personal funds to cover research costs; in 1986, for example, such out-of-pocket expenditures totaled nearly $13,000. Discretionary funds rose to $4,100 in fiscal year 1988, through salary savings, but at great cost to the Laboratory's mission.

3. Scientific positions are being lost. Without significantly increased funding, for which there seems to be no immediate possibility from within the Agricultural Research Service (ARS), ARS policy requires that the staff be reduced so that the remaining scientists have enough resources to operate effectively. The Laboratory's current budget would dictate a staff of 14, down 12 from the present level and 15 from that of 1986. The positions lost in the last few years included critically important expertise in plant-feeding mites, leafhoppers and caterpillars. Other scientists, not trained in these areas, have been forced to cover as best they can, but there is no question that research and services in these (and other) groups have suffered.

An additional potential problem is that the Laboratory's funding, while drawn largely from ARS base funds, is partially dependent on that of other agencies. The Laboratory receives an annual $328,000 reimbursement-for-services from the Animal and Plant Health Inspection Service (APHIS). The APHIS contribution, which supports 6 scientist positions, has survived critical review in the past few years but is vulnerable to future budget squeezes. Over the past 100 years the Laboratory has had free space for most of its staff at the Smithsonian Institution, in exchange for care of much of the National Collection of Insects. In recent years there has been discussion in the Smithsonian of charging rent to the Laboratory and other tenant organizations.

In summary, the SEL's budget per scientist is only half that of the ARS average. The Laboratory's position continues to decline, as illustrated in detail for 1987 in Appendix 5.

## PROPOSED SOLUTION: AN APPEAL TO CONGRESS

The current SEL budget of approximately $2 million would support the laboratory at the ARS average level at less than half its 1986 size. An additional $2 million would be necessary to maintain SEL at the 1986 size, which we consider necessary to provide a comprehensive national service. Such an increase does not seem possible from within the Agricultural Research Service. An outline of how the budget of SEL could be shored up in stages is provided in Appendix 6.

Last year we began a campaign to make others aware of the plight of the SEL and encourage them to express their views on the problem to Congress. The response to our modest effort was striking. There was communication to Congress and to the USDA administration by a great many users, representing private industry and trade associations, academic institutions, and state agencies. The message was delivered in letters, telephone calls and personal visits to Congressmen, and in resolutions passed by such organizations as the National Plant Board and the National Association of State Departments of Agriculture (Appendix 7).

Both Houses of Congress took note of these opinions. The final report of the Senate Appropriations Subcommittee for Agriculture stated:

> "The Committee expresses its strong support for continued full funding of the Systematic Entomology Laboratory. Scientists from all over the country rely on this facility for insect identifications to carry on their research."

An "add-on" proposal of $2 million for the SEL was submitted to the corresponding subcommittee in the House by Congressman Steny Hoyer of Maryland. There was also much-increased appreciation within the USDA of the SEL's importance to its users.

While we are greatly encouraged by our progress last year, the bottom line is still that no increase was passed and SEL's position continues to decline. It is apparent that obtaining the needed funding may be incremental over several years. This year we will once again ask Congress to provide the $2 million increase required for full funding of the SEL. We have arranged for testimony to this effect in both the House and Senate. It is critical, however, that this testimony be supported once again by the user community. We urge that you communicate your support for this initiative to your Senators and Congressman, with copies to the chairmen or other appropriate members of the House and Senate Appropriations Subcommittees for Agriculture (names and addresses in Appendix 8).

### Appendix 1. SEL scientists and their responsibilities

| Scientist Name | Name of Group | Number of Described Species |
|---|---|---|
| 1) Anderson | Beetle larvae | 105,000 |
| Baker (retired) | Plant-feeding mites | 10,000 |
| Batra (transferred) | Bees | 21,000 |
| 2) Carlson | Ichneumon wasps | 15,000 |
| 3) Dogger | Click beetles | 10,000 |
| 4) Ferguson | Measureworms | 60,000 |
| 5) Gagne' | Gall midges | 12,000 |
| 6) Gordon | Lady beetles and scarabs | 43,000 |
| 7) Grissell | Parasitic wasps (torymids and pteromalids) | 20,000 |
| 8) Henry | True bugs | 45,000 |
| 9) Hodges | Gelechioid moths | 20,000 |
| 10) Kingsolver | Seed beetles | 22,000 |
| Kramer (retired) | Leafhoppers, planthoppers | 100,000 |
| 11) Marsh | Braconid wasps | 10,000 |
| 12) Menke | Predatory wasps | 30,000 |
| 13) Miller | Scale insects | 6,000 |
| 14) Nakahara | Thrips and whiteflies | 7,500 |
| 15) Nickle | Termites, cockroaches crickets, grasshoppers and katydids | 30,000 |
| 16) Norrbom | Fruit flies,leafminer flies | 15,000 |
| 17) Peterson | Black flies and other biting flies | 15,000 |
| 18) Poole | Cutworm moths | 150,000 |
| 19) Schauff | Parasitic wasps (eulophids and mymarids) | 15,000 |
| 20) Smiley | Predaceous and parasitic mites | 30,000 |
| 21) Smith | Plant feeding wasps, especially sawflies | 17,000 |
| 22) Stoetzel | Aphids and phylloxerans | 3,700 |
| 23) Thompson | Hover flies | 30,000 |
| 24) White | Leaf beetles, deathwatch beetles | 30,000 |
| 25) Whitehead | Weevils | 50,000 |
| 26) Woodley | Parasitic flies, especially tachinids | 12,000 |
|  | Total | 934,200 |

### Appendix 2. Identifications provided by SEL in 1987, categorized by source of request

| Submitter Affiliation | No.id's | No.Specimens |
|---|---|---|
| APHIS / PPQ | 12,206 | 39,136 |
| Agricultural Research Service | 1,207 | 11,476 |
| Commercial Organizations | 98 | 1,642 |
| Department of Defense | 62 | 507 |
| Foreign | 2,604 | 17,116 |
| Forest Service | 145 | 1,538 |
| Individuals | 830 | 6,747 |
| Other Federal | 79 | 881 |
| Other State | 229 | 6,421 |
| Private University | 326 | 1,296 |
| State Agricultural Agency | 444 | 3,951 |
| State University | 3,298 | 20,648 |
| Other | 95 | 1,183 |

## Appendix 3. Identifications provided by SEL in 1987 categorized by reason for request

| Reason for Request | No. id's | No.specimens |
|---|---|---|
| Biological Control | 1,567 | 12,571 |
| Pests of Plant Crops | 1,377 | 12,651 |
| Pests of Regulatory Concern | 11,897 | 36,177 |
| Stored Product Pests | 61 | 397 |
| Animal Pests | 62 | 496 |
| Danger to Human Health | 60 | 395 |
| Household Pests | 97 | 811 |
| Possible Immigrant | 48 | 359 |
| Reference Collection | 778 | 4,587 |
| Survey | 840 | 4,628 |
| Thesis Problems | 585 | 4,222 |
| Research | 3,068 | 27,594 |
| Other | 1,183 | 7,695 |

## Appendix 4. Examples of current and recently completed research publication projects by SEL

### A. Projects in progress

- Manual of the gall midges of North America
- Manual of the fruit flies of the U.S.
- Systematic analysis of fruit flies in the genus Anastrepha
- Hover flies of North America
- Expert system for better use and access of fruit fly information
- Database of the flies of the United States and Canada
- Manual of the black flies of North America
- Rogas wasps including parasites of the gypsy moth, cutworms,
- Termites of North America
- Larra wasps, important parasites of mole crickets
- Taxonomic analysis of mole crickets
- Manual of sawfly larvae of North America
- Stiltbugs of the world; plant pests and predaceous biocontrol agents
- Manual of the plant bugs of the eastern U.S.
- Several fascicles of "Moths of America North of Mexico"
- Handbook of the seed beetles of North America
- Analysis of Heliothis using molecular and morphological characters
- Weevils in the Hyperinae, including alfalfa weevil
- Catalog of the beetles of the U.S. and Canada
- Ladybeetle larvae of the U.S.
- Fleabeetles of North America including corn and sweetpotato fleabeetles
- Manual of the economic scale insects of the U.S.
- Cunaxid mites of the world; mite predators of importance in biocontrol
- Biosystematic analysis of the phylloxerid genera of the world
- Morphometrics of the greenbug
- Thrips of the United States and Canada

### B. Recently completed projects useful to a broad audience

- Several fascicles of the beetle catalog
- Lady beetles of America north of Mexico
- Techniques for the collection and preservation of insects and mites
- Manual of the leafmining flies of the U.S.
- Catalog of the true bugs of North America
- Several chapters in a manual of the flies of North America
- An identification manual on the insects and mites in food
- Analysis of *Pero*, a moth genus commonly taken at U.S. ports-of-entry
- Catalog of the cutworm moths of the world
- Chapters for a book on immature insects
- Chapters for a book on the armored scales of the world
- Analysis of *Merobruchus*, seed weevils of use in biocontrol of weeds
- Egg parasites of the citrus weevil
- Essentials of the taxonomy of the parasitic Hymenoptera
- Biosystematic and biocontrol information systems in entomology
- Identification manual for the North American genera of Braconidae
- A catalog of the Crotch collection of lady beetles
- Identification key to the aphids that colonize wheat and barley
- Two fascicles of the "Moths of America north of Mexico"
- North American species of the bot fly genus *Cuterebra*
- Criocerine leaf beetles such as asparagus, cereal, and lily leaf beetles

### Appendix 5. Budgetary changes in SEL in 1987

| Item | FY 87 | FY 88 | Difference |
|---|---|---|---|
| No. of Scientists | 29.0 | 25.4 | -3.6 |
| No. of Technicians | 7.5 | 5.1 | -2.4 |
| Technicians/ Scientist | 0.3 | 0.2 | -0.1 |
| Total Funds | $2,001,769 | $1,925,144 | - $76,625 |
| Dollars / Scientist | $69,027 | $75,793 | + $6,766 |
| Discretionary Funds / Sci. | $ 1,500 | $ 4,100 | + $2,600 |
| No. of Clerical Staff | 3.45 | 2.45 | -1.0 |

### Appendix 6. Incremental plan for restoring the SEL budget

The following budget is given in increments in priority order beginning with the most urgent need.

| | | |
|---|---|---|
| 1) | Scientific positions:<br>Leafhoppers, plant-feeding mites, moths | $450,000 |
| 2) | $25,000 in operating funds for each scientist | 650,000 |
| 3) | Technicians<br>GS-5/9 one / two scientists...10 @ $28,000 each | 280,000 |
| 4) | Computer specialist GS-9/11 | 33,000 |

| | | |
|---|---|---|
| 5) | Scientific illustrator GS-7/11 | 33,000 |
| 6) | Clerk typist GS-4 | 18,000 |
| 7) | Technicians<br>GS-5/9 so that there is one / sci. @$28,000 ea. | 280,000 |
| 8) | Scientific illustrator GS-7/11 | 33,000 |
| 9) | Permanent addition of APHIS reimbursement to SEL | 328,000 |
| 10) | Space charges for the Smithsonian | 70,000 |
| | Total | $2,175,000 |

Appendix 7. Resolutions

NATIONAL ASSOCIATION OF STATE DEPARTMENTS OF AGRICULTURE
1616 H STREET, N.W. WASHINGTON, D.C.

1987

POLICY NO. PI-51

## FUNDING FOR THE SYSTEMATIC ENTOMOLOGY LABORATORY, BELTSVILLE, MARYLAND

The Systematic Entomology Laboratory, Agricultural Research Service, United States Department of Agriculture, has provided taxonomic research and services relative to insects and mites for more than 100 years. These services directly support federal and state action agencies, university research programs, integrated pest management systems, the extension service, foreign organizations, private industry and the general public. Such activities are vital for the detection and identification of exotic and endemic plant pests that pose a potential threat to American agriculture. In recent years, the efficiency of the laboratory has been impaired by the reduction of operating funds. The laboratory is in such poor financial shape that vacant scientific positions, such as the position for the identifications of plant feeding mites, will not be filled. The budget of the Systematic Entomology Laboratory is inadequate and there is not immediate possibility of increased funding within the USDA, ARS.

RESOLVED, that the National Association of State Departments of Agriculture, meeting in Atlanta, Georgia on October 7, 1987, finds the research and support services provided by the Systematic Entomology Laboratory to be critical to national pest detection, quarantine and control programs. Therefore, we urge Congress to provide an additional $2.1 million of annualized funds, beginning FY 1988, to the USDA, ARS Systematic Entomology Laboratory budget to preserve the continued operation of this vital laboratory in a more efficient and effective manner.

NATIONAL PLANT BOARD
Jackson, Wyoming
August 20, 1987

Resolution #15

## Funding for the Systematic Entomology Laboratory, Beltsville, Maryland

The Systematic Entomology Laboratory, Agricultural Research Service, United States Department of Agriculture has provided taxonomic research and services relative to insects and mites for more than 100 years. These services directly support federal and state action agencies, university research program, integrated pest management systems, the extension service, foreign organizations, private industry and the general public. Such activities are vital for the detection and identification of exotic and endemic plant pests that pose a potential threat to American agriculture.

In recent years the efficiency of the laboratory has been impaired by the reduction of operating funds. The laboratory is in such poor financial shape that vacant scientific positions, such as the position for the identifications of plant feeding mites, will not be filled. The budget of the Systematic Entomology Laboratory is inadequate and there is no immediate possibility of increased funding within the USDA, ARS.

RESOLVED that the National Plant Board at its 1987 Annual Meeting in Jackson, Wyoming, August 20, 1987, finds the research and support services provided by the Systematic Entomology Laboratory to be critical to national pest detection, quarantine and control programs.

FURTHER RESOLVED that the National Plant Board urges Congress to provide an additional $2.1 million dollars of annualized funds beginning FY88 to the USDA, ARS Systematic Entomology Laboratory budget to preserve the continued operation of this vital laboratory in a more efficient and effective manner.

Moved by: Roy Bjornson

Seconded by: Charles Puffinberger

Motion: Carried

Distribution:

Richard Lyng, Secretary, USDA
Bert Hawkins, Administrator, USDA-APHIS
Bill Helms, Deputy Administrator, USDA-APHIS-PPQ
T ~~P~~erry Kinney, Administrator, USDA-ARS
Patrick J. Leahy, Chairman, Senate Committee on Agriculture
E. de la Garza, Chairman, House Committee on Agriculture
Quentin N. Burdick, Chairman, Senate Sub-Committee on Appropriations
Jamie L. Whitten, Chairman, House Sub-Committee on Appropriations
J.B. Grant, NASDA

## Appendix 8. Members of the House and Senate Appropriations Subcommittees for Agriculture, Rural Development and Relative Agencies

### House of Representatives

Jamie L. Whitten, Chairman (Mississippi)
2314 Rayburn House Office Building
Washington, D.C. 20515

Virginia Smith, Ranking Republican (Nebraska)
2202 Rayburn House Office Building
Washington, D.C. 20515
Bob Traxler (Michigan)
2366 Rayburn House Office Building
Washington, D.C. 20515
Matthew F. McHugh (New York)
2335 Rayburn House Office Building
Washington, D.C. 20515
William H. Natcher (Kentucky)
2333 Rayburn House Office Building
Washington, D.C. 20515
Daniel K. Akaka (Hawaii)
2031 Rayburn House Office Building
Washington, D.C. 20515
Wes Watkins (Oklahoma)
2348 Rayburn House Office Building
Washington, D.C. 20515
Richard J. Durbin (Illinois)
417 Cannon House Office Building
Washington, D.C. 20515
Neal Smith (Iowa)
2372 Rayburn House Office Building
Washington, D.C. 20515
John T. Meyers (Indiana)
2372 Rayburn House Office Building
Washington, D.C. 20515
Joe Skeen (New Mexico)
1007 Longworth House Office Building
Washington, D.C. 20515
Vin Weber (Minnesota)
106 Cannon House Office Building
Washington, D.C. 20515

## Senate

Quentin N. Burdick, Chairman (North Dakota)
511 SH
Washington, D.C. 20510
Thad Cochran, Ranking Republican (Mississippi)
326 SR
Washington, D.C. 20510
John C. Stennis (Mississippi)
252 SR
Washington, D.C. 20510
Lawton Chiles (Florida)
250 SR
Washington, D.C. 20510
Jim Sasser (Tennessee)
298 SR
Washington, D.C. 20510
Dale Bumpers (Arkansas)
229 SD
Washington, D.C. 20510
Tom Harkin (Iowa)
705 SH
Washington, D.C. 20510
Robert Kasten (Wisconsin)
110 SH
Washington, D.C. 20510
Arlen Specter (Pennsylvania)
331 SH
Washington, D.C. 20510
Charles Grassley (Iowa)
135 SH
Washington, D.C. 20510

### SUBCOMMITTEE RECESS

Senator **Cochran**. This concludes our hearing today. Our next hearing will be held tomorrow in this same room, beginning at 9:30 a.m. We will again hear from public witnesses at that time.

Until then, we will stand in recess.

[Whereupon, at 4:20 p.m., Tuesday, April 26, the subcommittee was recessed, to reconvene at 9:30 a.m., Wednesday, April 27.]

# AGRICULTURE, RURAL DEVELOPMENT, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1989

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WEDNESDAY, APRIL 27, 1988

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
*Washington, DC.*

The subcommittee met at 9:40 a.m. in room SD-138, Dirksen Senate Office Building, Hon. Quentin N. Burdick (chairman) presiding.

Present: Senators Burdick and Sasser.

## NONDEPARTMENTAL WITNESSES

### SUBCOMMITTEE PROCEDURE

Senator BURDICK. The subcommittee will please come to order. This morning, we continue our hearings with the nondepartmental witnesses on the fiscal year 1989 budget for the Department of Agriculture and Related Agencies. I would like to remind you that your statements will be made a part of the record in full, and we ask you to summarize them briefly within a period of 5 minutes. We have a stop clock up here, so if you could keep your eye on that and finish when the light turns red, it would be appreciated.

We cannot receive for the record any copyrighted material for publication unless arrangements have been made in advance to obtain the permission of the copyright owner to include that material in the hearing transcript. This notice is given to protect copyright owners as well as the subcommittee and witnesses.

Our first witness this morning will be my colleague, the Honorable Kit Bond, Senator from Missouri.

### CONGRESSIONAL WITNESS

### STATEMENT OF HON. KIT BOND, U.S. SENATOR FROM MISSOURI

Senator BURDICK. Welcome to the committee, Senator.

Senator BOND. Thank you very much, Mr. Chairman. It is a pleasure to appear before you, and I would begin by commending this subcommittee for its diligent series of hearings, affording not only an opportunity for agency witnesses but for other members and for interested public participants.

I want to discuss, and summarize, as you suggested, very briefly, two requests that we think are very important for agriculture, and are, incidentally, important for our State.

90-311 0 - 89 -- 8

First is a request for funding for a new products group at the University of Missouri in Columbia. Let me state that the University of Missouri has taken a lead role in developing food for the 21st century, a concept utilizing agricultural products for the next century. I had the pleasure of recommending and signing authorizing legislation and appropriations when I was Governor of Missouri several years ago, and they have made great progress since that time.

Now, the university has formed a multidisciplinary group that analyzes the efficiencies, economies, and performances of products ranging from raw agricultural commodities to biodegradable plastics. In other words, the goal of this research system would be the development of products ready for commercial application. It goes all the way, as I said, from scientists to economists.

Members of the subcommittee had been made aware by corn growers and others of the biodegradable plastics that have the potential to create an enormous new product. I understand that Senator Glenn, when he was before you yesterday, brought in his biodegradable bags. I bring a biodegradable bag made from corn starch, and would offer this to the chairman to carry materials home. If you want to dispose of it, you know that it will degrade.

What the scientists are working on at the University of Missouri is finding out how it degrades, what the timeframe is and whether there are any adverse implications from its degrading in the soil.

Although we don't have the accurate scientific data necessary to support large-scale development of these biodegradable plastics, they hold tremendous promise. Major users, everything from fast food chains to package food producers could utilize corn in these biodegradable plastics if the basic scientific information was verified.

The new products group at the University is in a great position to test many different aspects of these products. The first-year budget request for the entire project is $537,000. This project is strongly supported by both the Missouri Corn Growers Association and the National Corn Growers Association. I would ask that a letter from the Missouri Corn Growers be inserted in the record. I also have a letter from the National Corn Growers, and I would like to read you just very brief pertinent excerpts.

Speaking of this new products group and the biodegradable products, Mr. Keith Hora, president of the National Corn Growers Association says:

> We have supported this work at the University of Missouri under the leadership of Dr. Gene Iannotti to develop a new products group for studying new uses for corn. NCGA has given its monetary support as well as moral support to this activity. We feel that it represents a first-class undertaking to help farmers solve their own problems. We urge you to find what support might be available to encourage this project.

I certainly hope that we will be able to provide assistance.

The final issue that I want to bring to your attention today, Mr. Chairman, has to do with something vitally important to the future of our Nation, and that is agricultural education. I came upon some startling statistics, which are probably well known to you but I had been previously unaware of, that undergraduate enrollment in our Colleges of Agriculture has declined by nearly 50 percent during the last decade.

In 1986, USDA projected a 10-percent annual shortfall of college graduates in food, agriculture, and natural resource disciplines through 1989 and a 17-percent shortfall is projected for agricultural scientists, engineers, and related specialists.

One of the things we can do to encourage more people to get into these careers is to reward excellence in the field. Last week, I had the privilege of addressing the first graduating class of USDA National Needs Graduate Fellowship Program participants. It was a very impressive group, Mr. Chairman. I read about their projects, and although I couldn't understand exactly what it was that they were doing, I had the very clear impression that they were working on the forefront of scientific advance.

These dedicated, able young individuals are going to be mapping our future. I would urge the committee to fund for $10 million per year, for 5 years the National Needs Fellowship Program. I would also urge a $10 million annual competitive challenge grant program, which would have the same effect.

I will submit a detailed statement and further materials. I thank the chairman.

Senator BURDICK. Thank you very much. I understand you have a plan for the new products group. I believe your proposal is for $537,000 for the first year.

Senator BOND. Yes, sir.

Senator BURDICK. What about subsequent years?

Senator BOND. I would assume that we would want to continue it, but I would say that we would want to see the progress made in that and review it each year. I don't think it should be entitled to indefinite support without showing real progress. If it does show real progress, then I would return and urge its continuing funding. But I am as skeptical as you are, rightfully so, about starting new projects without demanding some accountability and some progress in them.

Senator BURDICK. It is kind of a dilemma. You want it to succeed. If it succeeds, it is a cost item every year.

Senator BOND. If it succeeds, Mr. Chairman, I think it will provide markets for corn growers in your State and mine. It will provide the benefit of much-improved environmental materials for all of us concerned with the environment. I think ultimately, it will be of great benefit to our consumers. I think it is an investment, if it succeeds.

Senator BURDICK. Thank you, Senator, for your testimony here this morning.

Senator BOND. Thank you very much, Mr. Chairman.

[The statement follows:]

## STATEMENT OF SENATOR BOND

Mr. Chairman, it is a pleasure to appear before this Subcommitee and I very much appreciate the invitation to discuss some issues of importance to my home state of Missouri. Before beginning my testimony, I commend this Subcommittee on its diligent schedule of hearings to cover all the relevant government agencies and also to accommodate the requests of both members and the public.

Although I will discuss only a couple proposals this morning, I will soon submit a more detailed request to Subcommittee members and ask that it be given appropriate consideration.

The following is a brief summary of the projects.

* Funding for a New Products Group at the University of Missouri-Columbia. A multidisciplined team has been assembled with two basic objectives: to investigate the conversion of renewable agricultural products into industrial chemicals and to develop complete systems for utilizing whole plants to generate non-traditional products with new market potential.

* Increased funding for USDA's National Needs Graduate Fellowship Program and initial funding for a Competitive Challenge Grant Program. Throughout the last decade, American colleges and universities have experienced severe enrollment declines in the agricultural sciences. These programs address this shortage and attract the scientific minds which will lead us into the next century.

Mr. Chairman, the University of Missouri has developed what I believe is a very exciting and much needed research concept--entire systems to analyze product development all the way from basic through applied research.

Over the past year, Congress has become involved in efforts to link advances in biotechnology and genetic engineering with specific applications in the agricultural sector. In fact, last year Senator Harkin sponsored legislation in this area which went on to pass the Senate. Although the United States has done a remarkable job with basic research, we have not capitalized fully on these advances through the use of applied research.

The University of Missouri has now formed a multidisciplinary research team to address this imbalance. The team, consisting of agricultural engineers, agronomists, microbiologists, chemists, animal scientists, food scientists and nutritionists will be able to perform not only basic research but also analyze the efficiency, economies and performance of products ranging from raw agricultural commodities to biodegradable plastics. In other words, the goal of this research system would be the development of products ready for commercial applications.

The members of this Subcommittee have no doubt been made aware by your corn growers that biodegradable plastics have the potential to create an enormous new market. Corn starch can now be added to plastics, thus reducing the costs and negative effects which traditional plastics have had on the environment. Although biodegradable plastic products are now being produced in the United States on a limited basis, we lack the scientific data necessary to ensure the biodegradability claims. Large companies are somewhat hesitant to begin the transition towards this new generation of plastics without hard scientific evidence supporting the biodegradability claims. As members of Congress, we must hesitate to enact measures such as required usage until we can be sure the products do what they say they will. It has been my experience that it takes much longer to gain consumer confidence than it does to lose it.

The New Products Group is in a position to test the many different aspects of new products. In the case of biodegradable plastics, the Group has already developed research plans which begin with microbiology, proceed through modeling analysis, the identification of coproducts, environmental impacts and conclude with product evaluation. Specifically, under the environmental impacts, the group will analyze biodegradable plastics under various soil conditions, moisture levels as well as determine if there are any adverse effects on soils' ability to support the continuous growth of grass.

A key component of this system is being able to bridge the gap between research and commercialization. The Group's approach will be to identify potential users of the new technologies early on in order that they could provide assistance with the direction of the research.

The funding for this project would be dispersed through the Cooperative State Research Service (CSRS). The first year budget for the entire project has been estimated at $537,000. This includes funds for fifteen graduate students, one secretary, one technician, equipment and salaries of the principal investigators who lack twelve month contracts.

The final issue which I shall discuss this morning has to do with something vitally important to the future of this nation--education. Representing a state with a large agricultural sector, I am truly amazed at the progress we have made over time. Farmers in the United States now produce enough to feed 114 people.

Why have we experienced this phenomenal growth? Will it continue? Where will we be in a hundred years? The answer to these questions is related directly to education. Without a renewed interest in the agricultural sciences, the United States may not be in a position to capitalize on new technologies such as biotechnology and genetic engineering.

A few months ago, some startling figures were brought to my attention. Undergraduate enrollments in our colleges of agriculture have declined by nearly 50 percent during the last decade. In 1986, USDA projected a 10 percent annual shortfall of college graduates in food, agriculture and natural resource disciplines through 1990. A 17 percent shortfall is projected for agricultural scientists, engineers and related specialists.

In my opinion, this could not come at a worse time. We must take steps to reverse this trend and enlighten others of the opportunities existing within the agricultural sciences. For starters, increased efforts must be undertaken to increase funding for USDA's National Needs Graduate Fellowship Program.

Last week, I had the privilege of addressing the first graduating class of fellows. Looking over their information sheets before the presentation, I was very impressed with the quality of students the program has attracted. Irrespective of their field, whether it be agricultural engineering, biotechnology, food science or marketing, these dedicated individuals will help chart a course for our nation which will lead us into the twenty-first century.

I was very pleased to learn that although USDA has not included the program in its budget request in the past, the Senate

Appropriations Committee has fought to see it funded. This year, the program was funded at approximately $2.8 million. I believe we should work to increase this to at least $10 million annually for a 5 year period. What better investment can we make, than one in human capital?

In addition, I am very supportive of the National Association of Land Grant Colleges and Universities request for a new Competitive Challenge Grant Program, funded at $10 million annually for a 5 year period. This program would combine private, state and federal funds to further strengthen the quality of our higher education system. Specifically, the program would increase awareness of the agricultural sciences by improved student recruitment activities, curriculum revitalization initiatives, expanded undergraduate research projects, greater opportunities for faculty development and partnership ventures between universities and businesses.

Mr. Chairman, I plan to submit a more detailed description of my appropriation request in the very near future. I would like to thank the members of this Subcommittee for inviting me to testify this morning and would hope these requests each receive appropriate consideration.

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## LETTER FROM STEPHEN L. CARPENTER, EXECUTIVE DIRECTOR MISSOURI CORN GROWERS ASSOCIATION

April 26, 1988

The Honorable Christopher S. Bond
United States Senate
293 Russell Senate Office Building
Washington, DC 20510

Dear Kit:

In an earlier mailing to you and Dan Cassidy, we alerted you about a Missouri Corn Merchandising Council's project that is being developed at the University of Missouri. The project involves the production and utilization of industrial substances derived from agriculture commodities. To support this effort we have been working with Dr. Roger Mitchell and Dr. Gene Iannotti to develop a cluster group of scientists (New Products Group) to address the potential for new uses for corn.

The Missouri Corn Growers Association is in total support of the Missouri Corn Merchandising Council's efforts to develop this activity with the University of Missouri. We believe it is extremely important to the future of the corn industry that we begin to identify new uses for our product so that we can reduce the burdensome surplus of corn that continues to depress prices.

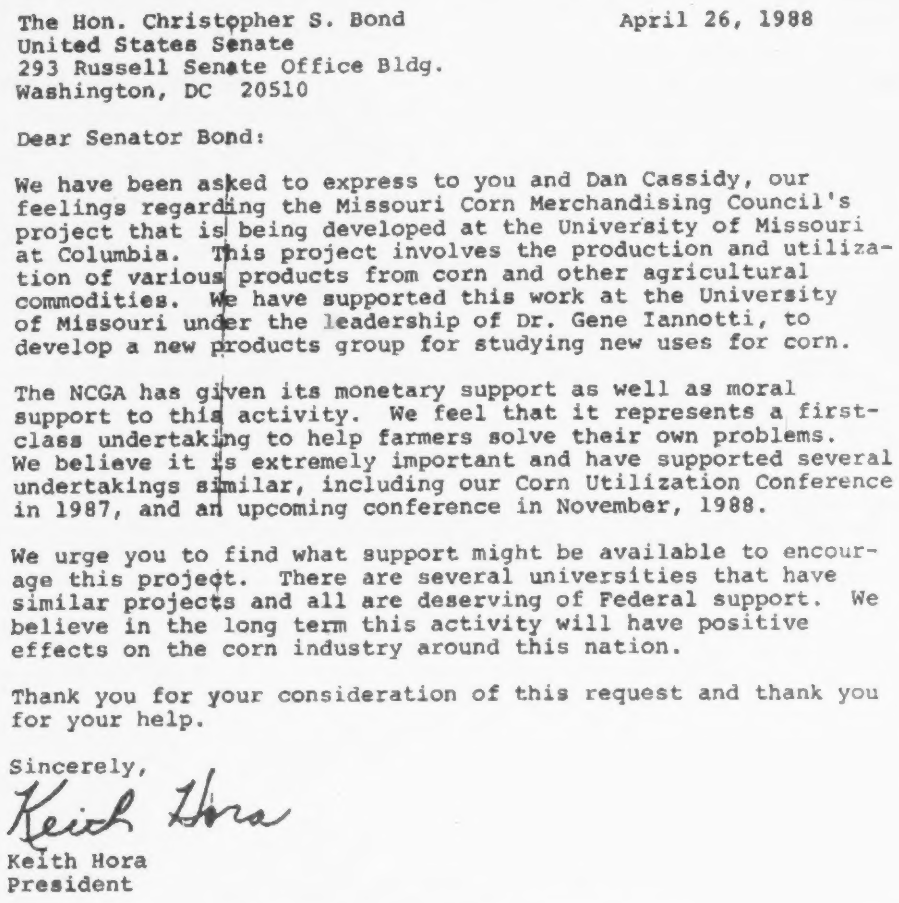
We urge you to investigate what assistance might be available to encourage this project and support the New Products Group at the University of Missouri. We believe it will be a long term activity that will have numerous positive implications for Missouri's corn industry.

We appreciate your consideration of this request. Thank you for your help.

Sincerely,

Stephen L. Carpenter
Executive Director

## LETTER FROM KEITH HORA, PRESIDENT, NATIONAL CORN GROWERS ASSOCIATION



The Hon. Christopher S. Bond
United States Senate
293 Russell Senate Office Bldg.
Washington, DC 20510

April 26, 1988

Dear Senator Bond:

We have been asked to express to you and Dan Cassidy, our feelings regarding the Missouri Corn Merchandising Council's project that is being developed at the University of Missouri at Columbia. This project involves the production and utilization of various products from corn and other agricultural commodities. We have supported this work at the University of Missouri under the leadership of Dr. Gene Iannotti, to develop a new products group for studying new uses for corn.

The NCGA has given its monetary support as well as moral support to this activity. We feel that it represents a first-class undertaking to help farmers solve their own problems. We believe it is extremely important and have supported several undertakings similar, including our Corn Utilization Conference in 1987, and an upcoming conference in November, 1988.

We urge you to find what support might be available to encourage this project. There are several universities that have similar projects and all are deserving of Federal support. We believe in the long term this activity will have positive effects on the corn industry around this nation.

Thank you for your consideration of this request and thank you for your help.

Sincerely,

Keith Hora

Keith Hora
President

## MASTER MARKETERS' ASSOCIATION

### STATEMENT OF ARLAN ANDERSON, PRESIDENT, MINNESOTA CROP INSURANCE AGENTS ASSOCIATION

### ACCOMPANIED BY JOHN KRABSETH, MANAGER, NORTHERN CROP INSURANCE, INC.

Senator BURDICK. Our next witness will be Arlan Anderson, president of the Minnesota Crop Insurance Agents Association, Master Marketers' Association.

Good morning.

Mr. ANDERSON. Good morning, Mr. Chairman.

Senator BURDICK. Proceed as you wish.

Mr. ANDERSON. I am Arlan Anderson, and I am president of the Association of Crop Insurance Agents. I am from Argyle, MN, the heart of the Red River Valley. I am an independent agent marketing crop insurance through Northern Crop Insurance, a master marketing company. With me from Williston, ND, is John Krabseth, manager of Northern Crop Insurance, Inc.

We are here this morning to urge Congress to continue to support Federal crop insurance with adequate funding so we, as agents, can continue to provide an affordable crop insurance program for the American farmer. We would like to commend Congress for its past support of FCIC.

A number of changes have been made in providing the farmer with production cost protection. This is not the time to shift the cost of administration to the farmer with increased premium. Cooperation between management of FCIC, master marketers and multiperil companies is of great importance.

In the past few years, too much time has been spent on maintaining old business. We believe an aggressive sales approach to new business should be undertaken by the industry instead of trying to sell business that already has been sold. The present contribution toward cost of administration and subsidized premiums should be continued until a larger percentage of farmers are insured.

FCIC is still the cheapest method of providing disaster protection. Appropriations at the same level should be provided with Federal Crop Insurance being required to establish faulty control to ensure that all claims by both MPCI and FCIC be audited by the same compliance division. This could ensure that the taxpayers' dollars are not misused.

Past GAO reports have been very critical of overpayments on lost claims and have been detrimental to the expansion on marketing of crop insurance.

Some of the inequities must be corrected to assist in restoring credibility to FCIC. We feel that Congress should require a more rigid control on lost expenditures reported by both FCIC and MPCI companies. Reports of the extent and results of quality control should be made available by both MPCI and FCIC to Congress to ensure compliance.

Since the Federal Crop Insurance Act of 1938, bipartisan support has been given to crop insurance and should be continued, with Congress providing direction to ensure continuity. The possibility of a career position should be established for the manager of the corporation. The constant change of managers is not a solution to correct problems within the system.

We hope that Congress will continue in overseeing and help in overseeing that compliance is carried out and continue the support for the needed protection for the American farmer. It is important that consideration be given to the resolutions passed by the National Wheat Growers Association at their last convention. I have attached their resolutions and would like to emphasize that commodity groups such as theirs promote farmer and policyholder concerns in a unified voice.

Increased participation has been a goal since the FCIC Act of 1980. Yet participation has only increased slightly. FCIC should provide a marketing division to assist both MMA and MPCI marketing systems. With direct assistance from the field, the knowledge of farmer acceptance and policyholder needs reviewed, FCIC should proceed carefully before policy changes are made. Changes made in the FCIC program are late in being analyzed for marketing results. A more responsive approach should be considered.

I would like to thank the chairman for the time allowed and offer our cooperation in providing a viable crop insurance program for the farmer. At this time, we will be happy to answer any questions the committee may have.

Senator **BURDICK**. Thank you. Mr. Krabseth, do you have a comment or testimony?

Mr. **KRABSETH**. No; we are hoping that the crop insurance program will continue to be successful. We believe firmly that it is a good program, but what we do need is assistance from Congress in appropriations. I do not believe that the farmer can afford the full burden of the cost of the premium. We are especially dry in our area this year.

Senator **BURDICK**. I was going to ask you that question.

Mr. **KRABSETH**. We haven't had any rain yet, ten one-hundredths in Bismarck I heard last night, but very dry.

Senator **BURDICK**. Is seeding going on in Williams County?

Mr. **KRABSETH**. Starting to seed.

Senator **BURDICK**. Starting to seed now.

Mr. **KRABSETH**. A number were delaying planting because of moisture but at the present, I believe they are starting to seed now, before it is too late to plant. Quite a few of them are planting to provide suction to their field so they won't have erosion from wind.

Senator **BURDICK**. I am very interested in what is happening out there, because I still own 10 acres of land near Buford. I want to make sure the crop conditions were good.

Mr. **KRABSETH**. Not too good. We would also like to thank you for your support for Fort Union, for the appropriations, and that project is coming along very nicely.

Senator **BURDICK**. The Federal Crop Insurance Corporation has about 23 master marketers on contract, I understand. How many master marketers do you represent? Mr. Anderson?

Mr. **KRABSETH**. I don't know the number. I suppose eight, nine. I don't know; 10 maybe.

Senator **BURDICK**. I see. Last year the Government Accounting Office found high claims error rates in both delivery systems. Has progress been made toward improving the claims handling by your members since then?

Mr. **ANDERSON**. We feel that the Compliance Division has taken a positive step forward, and it appears to us that the manager is making an attempt to draw the strings together and to get the system back on track.

Senator **BURDICK**. You claim yourself, in your main testimony, that there are a lot of errors made.

Mr. **ANDERSON**. There have been in the past and, of course, that has been exposed, but with the Compliance Division and appropriations that came in to fund it and get going, I believe that they are going to be able to set their teeth into it and carry out the corrections that are going to be needed.

Senator **BURDICK**. You mentioned the Wheat Growers' resolution. What is the gist of those resolutions? Do you recall?

Mr. **ANDERSON**. Pardon me?

Senator **BURDICK**. The Wheat Growers' resolutions. You mentioned them in your opening statement.

Mr. **ANDERSON**. Yes.

Senator **Burdick**. What do they consist of? What is the gist of them?

Mr. **Anderson**. Basically, they have a lot more resolutions than I presented this morning, but they basically support what I have asked for in the premium subsidy levels. They support the dual delivery system. They state that, on the last page under Resolutions, that they are looking for equity in the program.

Senator **Burdick**. Thank you gentlemen for your testimony this morning.

Mr. **Anderson**. Thank you.

[The statement follows:]

## STATEMENT OF ARLAN ANDERSON

I am Arlan Anderson, President of the Minnesota Association of Crop Insurance Agents and I'm from Argyle, Minnesota. I am an Independant Agent marketing crop insurance through Northern Crop Insurance, Inc., a Master Marketing Company. With me from Williston, N.D. is John Krabseth, Manager of Northern Corp Insurance, Inc.

We are here this morning to urge Congress to continue to support Federal Crop Insurance with adequate funding so we, as Agents' can continue to provide an affordable crop insurance program for the American farmer. We would like to commend Congress for its past support of FCIC.

A number of changes have been made in providing the farmer with production cost protection. This is not the time to shift the cost of Administration to the farmer, with increased premium. Cooperation between management of FCIC, Master Marketers and Multi-Peril companies is of great importance. In the past few years, too much time has been spent on maintaining old business. We believe an aggressive sales approach to new business should be under taken by the industry, instead of trying to sell business that already has been sold.

The present contribution toward Cost of Administration and Subsidized Premiums should be continued until a larger percentage of farmers are insured. FCIC is still the cheapest method of providing disaster protection. Appropriations at the same level should be provided with Federal Crop Insurance being required to establish quality control to insure that all claims by both MPCI and FCIC be audited by the same compliance division. This could insure that the tax payer's dollars are not misused.

Past GAO Reports have been very critical of overpayments on loss claims and have been detrimental to the expansion on marketing of Corp Insurance. Some of the inequities must be corrected to assist in restoring credibility to FCIC. We feel Congress should require a more rigid control on loss expenditures reported by both FCIC and MPCI Companies. Reports of the extent and results of quality control should be made available by both MPCI and FCIC to Congress to insure compliance.

Since the Federal Crop Insurance Act of 1938 bipartisan support has been given to Crop Insurance and should be continued with Congress providing direction to insure continuity. The possibility of a career position should be established for the manager of Corporation. The constant change of Manager's is not a solution to correct problems within the system. We hope that Congress will help in overseeing that compliance is carried out and continue to provide the needed protection for the American farmer.

It is important that consideration be given to the resolutions pass by the National Wheat Growers Association at their last convention. I have attached their resolutions and would like to emphasize that Commodity groups such as their's promotes farmer and policyholder concerns in a unified voice.

Increased participation has been a goal since the FCIC Act of 1980; yet participation has only increased slightly. FCIC should provide a marketing division to assist both MMA and MPCI Marketing Systems. With direct assistance, from the field, the knowledge of farmer acceptance, and policy holder needs reviewed, FCIC should proceed carefully before policy changes are made. Changes made in the FCIC program are late in being analyzed for marketing results. A more responsive approach should be considered.

I would like to thank the Chairman for the time allowed and offer our cooperation in providing a viable crop insurance program for the farmer. At this time, we'll be happy to answer any questions the committee my have.

## 1988 NAWG Resolutions

NAWG recommends that FCIC and producers work on a regional basis to improve coverage and to develop more equitable premiums. The NAWG urges FCIC officials and industry associations to make a greater attempt to provide wheat producers with a better understanding of how the program works. Also, FCIC should more rapidly implement the changes necessary to make federal crop insurance a more effective and equitable program.

NAWG urges FCIC to decentralize its Kansas City office and route all processing and claims payments through district offices as a way to speed up the claims and payment processes.

NAWG pledges continued support for individual yield coverage programs, and believes that the actual production history program offered in 1986 is a logical extension of the individual yield coverage programs.

NAWG supports the 1980 Federal Crop Insurance Act and its present level of premium subsidy, and the establishment of regional farmer advisory committees, on a commodity-by-commodity basis, to aid in developing input to improve FCIC.

NAWG recommends that federal crop insurance liability be established by the coverage applicable at the time the crop is initially planted, when the same crop may be replanted on the same acreage. Federal crop insurance should provide a payment based on replanting costs when any insured crop is replanted.

NAWG opposes any requirement that FmHA and Small Business Administration borrowers purchase federal crop insurance.

NAWG recommends that producers be allowed to self-insure by establishing a tax-deferred fund from the sale of from one to five bushels per acre per year. These funds could be withdrawn only in the event that yields fall below county ASCS average yields, or proven yields.

NAWG recommends the publication of an annual FCIC report to be available to all policy holders at their request.

NAWG supports reducing interest rates on unpaid FCIC premiums to the rate charged for CCC loans, in place of the current 1-1/4 percent per month charge.

NAWG urges FCIC to work with producer organizations to develop educational programs to inform farmers of the benefits of FCIC.

In establishing the high election price, FCIC should use the 15-month cash market or 75 percent of the current target price—whichever is larger—for the length of the present farm bill.

NAWG recommends an eight-member FCIC board of directors, including: (1) USDA deputy undersecretary; (2) FCIC manager; (3) MMA representative; (4) MPCI representative; (5) Wheat/barley representative; (6) Corn representative; (7) Soybean representative; and (8) a representative of other major crops.

NAWG supports the concept of individual coverage programs that incorporate the following:

1. APH based on 10 year history;
2. APH based on 10 year history but dropping the high and low years;
3. Dropping the (T) transitional yield tables and establishing in their place production based on nearby fields yield levels; and
4. Allowing farmers the option to use the ASCS program yield to replace APH.

NAWG supports the continuation of the dual delivery system in the Federal Crop Insurance program.

NAWG recommends that FCIC review the malting barley coverage and that it continue to permit revisions of acreage reports to reflect changes in acreage to comply with ASCS programs.

NAWG supports the reinstatement of the good experience discount and the large acre discount.

NAWG recommends FCIC establish zoning by states, by county and by practice for actuarial purposes.

The NAWG recommends farmers be allowed to have natural units for each different farming practice of the same crop when the different practices have different risk factors thus allowing FCIC to establish different premium ratings.

NAWG supports continuation of optional units and continues to object to the 10 percent surcharge. NAWG will change its position only when a complete study of all FCIC/MPCI contracts is conducted and only if the results of the study justify the surcharge.

NAWG supports the continuation of the 30 percent premium subsidy up to the 65 percent yield coverage level.

NAWG recommends FCIC establish the procedure of compensating all companies as regulated by the Federal Crop Insurance Act as amended in 1980, excluding all negotiation processes.

NAWG recommends FCIC adjust the individual crop premium rates so collected premiums for each crop will pay expected indemnities based on inherent crop risk, plus accumulate the reserve as required by the 1980 amended Act.

NAWG encourages the manager of FCIC to place a surcharge on premium rates for new policies sold when conditions indicate higher potential for losses exist. This surcharge should reflect the degree of the increased potential for loss.

NAWG recommends FCIC maintain responsibility and authority for all actuarial functions.

NAWG supports a law that would require FCIC to assume all loss adjustment responsibilities in the federal crop insurance program.

NAWG supports the dual delivery system and recommends FCIC establish an equal and maximum commission to be paid to agents performing under both MMA and MPCI contracts. This maximum would include all agent incentives, trips, sales meeting expenses and other monetary returns for services performed.

NAWG recommends FCIC establish premium payment dates at least 30 days following customary harvest completion.

NAWG supports a policy of giving premium discounts if premiums are paid within 30 days after a grower receives his initial summary of protection.

## AMERICAN ASSOCIATION OF CROP INSURERS

### STATEMENT OF RICK GIBSON, CHAIRMAN

### ACCOMPANIED BY BILL CLASSEN, PRESIDENT, RAIN & HAIL INSURANCE SERVICES, INC., DES MOINES, IA

Senator BURDICK. Our next witness will be Mr. Rick Gibson, chairman of the American Association of Crop Insurers.

Good morning.

Mr. GIBSON. Thank you, Mr. Chairman.

Senator BURDICK. Proceed as you wish.

Mr. GIBSON. Mr. Chairman, I am Rick Gibson, president of the American Association of Crop Insurers, and also president of American Agrisurance in Counts Bluffs, IA. I am here today representing the association, and accompanying me is Bill Classen, president of the Rain and Hail Insurance Services, Inc. of Des Moines, who is vice chairman of the association.

Our association represents the private insurance organizations of both Federal and private policy delivery systems involved in writing about 80 percent of the total premiums generated by the multiperil crop insurance program. Because of limited time here today, I would like to summarize our testimony and ask that the full statement be included in the record.

Senator BURDICK. It will be received.

Mr. GIBSON. We have appeared before this committee on previous occasions representing only the risk-bearing private insurance companies that participated in FCIC's program of reinsurance. However, today, we are pleased to announce that our membership has recognized the problems of a divided industry and has unanimously passed a resolution to become delivery system neutral.

We intend to focus principally on the issues that will make this program work better for farmers regardless of which delivery system they choose to utilize. We learned a long time ago that it is a privilege to be able to serve the farm community. We deeply appreciate the opportunity to participate with the government in a risk-bearing partnership to provide multiperil crop insurance to an ever-increasing number of farmers throughout the United States.

The almost $4 billion in lost payments made between 1981 and 1987 has saved many farm families and have had a positive financial impact on rural communities across this great Nation. Our primary purpose here today is to support the funding and continue full Federal support of the Federal Crop Insurance appropriation as presented by Under Secretary Vautour and FCIC Manager Marshall to the subcommittee several weeks ago.

Mr. Chairman, we firmly believe that the Crop Insurance program enacted in 1980 is just coming out of transition and beginning to work effectively. We base this judgment on the fact that the almost $4 billion in lost payments from 1981 to 1987 have had an important economic impact to farmers; and two, in 1987, the gross acres insured reached a record 62 million acres, in spite of the fact that 20 to 25 percent of cropland acres were idled by Government set-aside and conservation reserve programs.

In private industry, our writers have been most effective in signing up new customers for the Crop Insurance Program. Records indicate that in 1987, the new sales premiums amounted to $98 million. That is about 27 percent of the $365 million of total premium written.

We are pleased with the improved estimated loss ratio for 1987, the 0.92 percent, which shows that the program is being operated on a more actuarially sound basis. We are all aware that the serious claims handling errors that were disclosed during the past year in audits by a number of government agencies. While such errors cannot be ignored, some of the publicized error rates and projections of impact appear to have been overstated.

However, our studies that analyzed the aggregate data of Federal and private policies indicated the overall claims handling performance of the risk-bearing private companies compares favorably to that of FCIC.

The 1988 signup appears to have gone well. We don't have firm numbers yet because the sales signup deadline in most States was April 15, but we would not be surprised that the gross acres insured are up 5 to 10 percent for 1987. In July 1987, we provided a comprehensive report to the FCIC manager that provided recommendations for FCIC and included a prescribed set of actions that the industry service organizations are implementing.

Comprehensive recommendations for companies to reduce error rates also have been formulated. FCIC must take the lead role in policing this program. We are on record and will continue to encourage FCIC management to be forthright in monitoring operations of all crop insurance organizations to exercise strong disciplinary actions when they find any writing organization not following the approved rules and procedures.

We are pleased with the announcement of manager Marshall before this committee to strengthen the compliance and oversight by the corporation and fully support his efforts in that behalf. We understand that some individuals have expressed concern that the expense reimbursement rates of the delivery systems may not be appropriate. I can tell you that in my company, according to the compliance reviews to date, we are operating within the prescribed rules.

However, last year, it cost us considerably more to administer the program than our expense reimbursement. That is on a premium base of just under $20 million. As a result of the concern, the association went on record over a year ago encouraging FCIC management to employ the services of a Big 8 accounting firm to carefully audit writing organizations of both delivery systems to determine whether the current expense rates are correct.

We have also encouraged Manager Marshall to launch these initiatives as soon as possible in order to settle the issue once and for all. There is much about this program of which farmers, the Government, and the industry can be proud. The primary ingredient that has been missing for the last few years is program stability. This instability caused the rates and rules to be published late and left very little time for new sales. With a program freeze, we will be able to implement comprehensive marketing programs that give agents and farmers across this great land the first opportunity to carefully evaluate how crop insurance would work on individual farms.

When this happens, many farmers will sign up for crop insurance. Therefore, Mr. Chairman, we request that you and your committee do everything possible to provide adequate funding for the program. We ask that you use your influence to help stabilize the program, to stay the course and give it a little more time to blossom. Meanwhile, we will continue to encourage FCIC to improve program integrity, compliance, and oversight. We thank you for this opportunity to share our thoughts with you today. The text of the full testimony, which is provided for the records, goes into these issues in much more detail.

We trust that the committee will review it carefully, and we will be glad to entertain any questions that you might have.

Senator BURDICK. Thank you.

The FCIC has about 40 reinsured companies on contract.

Mr. GIBSON. Yes.

Senator BURDICK. In your statement, you mentioned your association represented about 80 percent of total premiums generated by the Multiple-Peril Crop Insurance Program. How many companies do you represent, and what is the amount of premium income that each member represents?

Mr. GIBSON. The number of companies represented by the association, I think, is 25 companies. I would say that those companies represent approximately 80 to 85 percent of the total reinsured premium that is written, sir.

Senator BURDICK. I am pleased to hear you say that the AACI delivery system is neutral. Does this mean that you will now be focusing primarily on how to improve the program for farmers rather than advancing the causes of a particular delivery system?

Mr. GIBSON. That is very true, sir. We, at our last annual meeting, passed a resolution. We have opened our membership to those master marketers who had wished to join. We feel it is very important to put the dispute, I guess you would call it, between the delivery systems behind us and to work very closely with FCIC to develop the programs and implement the program that would benefit the farmers rather than to fight over the issues ourselves.

We think that the farmer who makes the ultimate choice of where he purchases his crop insurance is the answer in this part of it.

Senator BURDICK. What improvements have the reinsured companies made in the handling of claims adjustments and payment on losses?

Mr. CLASSEN. Mr. Chairman, a very comprehensive plan——

Senator BURDICK. Can you pull that mike a little closer to you?

Mr. CLASSEN. A very comprehensive compliance program is in effect and is being developed as we go along. Again, I would like to back up a little bit on the GAO report, which was done on claims in 1985.

At that time, there were many, many changes in the rules in the program, and it was difficult for anyone to know exactly what the rules were back at that time, especially when the audit came along two or three years later. We do know there were some bad claims. They have been corrected, and FCIC at this time has a full compliance program in effect.

It is the determination of the American Association of Crop Insurers that we conduct this program properly. So we think there is much improvement at this point.

Mr. GIBSON. I would like to add to that, and which I stated in the testimony, immediately after the preliminary report of the GAO was issued, the American Association of Crop Insurers implemented a task force to develop recommendations to FCIC to, I think, resolve many of the problems that were brought to light by the GAO.

Also, many of those, approximately 70 percent of those errors were within two companies, and it was also very regional in nature, so that it was not as widespread across the overall book of premium as it was more regional.

Mr. CLASSEN. I would suggest, too, that we would look forward to another audit on 1987 business, when the program had stabilized to a certain extent. This program expanded rapidly from a few crops to over 40 crops in nearly all counties in the Nation from 1981 until the present day. So we would look forward to another audit to prove that the program really is working properly at this point.

A program will always need some improvement as you go along. We think the big problems have been attended to.

Senator BURDICK. Then you are telling us that some of the errors that were made in the past have already been corrected?

Mr. CLASSEN. Yes.

Senator BURDICK. That would be quite a job, wouldn't it?

Mr. CLASSEN. Pardon me?

Senator BURDICK. That is quite a job to do that.

Mr. CLASSEN. Maybe I didn't understand your question.

Senator BURDICK. I say to correct the errors of the past is quite a job, quite a task.

Mr. CLASSEN. Yes; that is a task.

Mr. GIBSON. Excuse me, Mr. Chairman. I think the companies have implemented a very comprehensive, through another association, the National Crop Insurance Association, guidelines and rules in regards to schools and educating of the adjustors. I think many of those problems that were highlighted in that GAO audit have been attended to and have been corrected.

Senator BURDICK. Thank you gentlemen.

Mr. CLASSEN. Thank you, Mr. Chairman.

Mr. GIBSON. I might just mention that in North Dakota, Mr. Chairman, in 1987, it appears that there were $23 million worth of premium; about 8,200,000 acres under coverage. This would be total coverage, and the estimated loss ratio in North Dakota is 1.63. The overall average is about 1.34, so North Dakota has been a very strong participant in the Multiple-Peril Crop Insurance Program and has afforded much protection to the farmers in North Dakota.

Senator BURDICK. Thank you for putting those figures in the record.

Mr. GIBSON. Thank you very much, sir.

[The statement follows:]

## STATEMENT OF R.C. GIBSON

Mr. Chairman, I am Rick Gibson, President of the American Agrisurance, Inc., and Chairman of the Board of Directors of the American Association of Crop Insurers. I am here today representing the Association. Accompanying me is Bill Classen, President of Rain and Hail Insurance Services, Inc., of Des Moines, Iowa, who is Vice-Chairman of the Association. Our Association represents the private insurance organizations of both federal and private policy delivery systems involved in writing about 80% of the total premiums generated by the multiple peril crop insurance program. Because of the limited time here today I would like to summarize our testimony and ask that the full statement be included in the record.

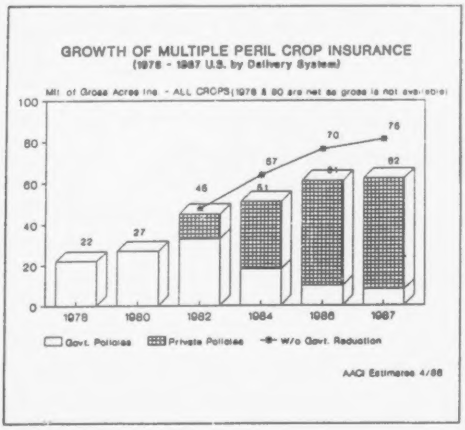
We have appeared before this subcommittee on previous occasions representing only the risk bearing private companies that participated in FCIC's program in reinsurance. However, today, we are pleased to announce that our membership has recognized the problems of a divided industry and has unanimously passed a resolution to become delivery system neutral. We intend to focus principally on the issues that will make this program work better for farmers, regardless of which delivery system they choose to utilize. We learned a long time ago that it is a privilege to be able to serve the farm community. We deeply appreciate the opportunity to participate with the government in a risk bearing partnership to provide multiple peril crop insurance to an ever increasing number of farmers throughout the U.S. The almost $4 billion in loss payments made between 1981 and 1987 have saved many farm families and have had a positive financial impact on rural communities across this great nation.

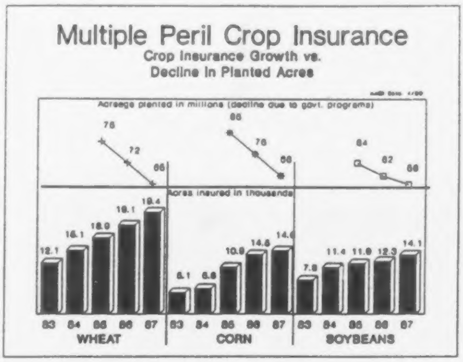
Our primary purpose here today is to support the full funding and continued full federal support of the Federal Crop Insurance Corporation as presented by Undersecretary Vautour and FCIC Manager Marshall to this subcommittee several weeks ago. We believe the budget they proposed will make it possible for the maximum number of farmers to purchase meaningful disaster protection through the crop insurance program in 1989. We also believe it is critical that this subcommittee continues to authorize emergency borrowing authority for FCIC which could be used to pay claims in the event of a serious national disaster. This is essential because we all know how important it is for farmers to receive their loss payments in a timely manner when such disasters occur.

### THE PROGRAM IS BEGINNING TO WORK SUCCESSFULLY.

Mr. Chairman, we firmly believe that the crop insurance program enacted in 1980 is just coming out of transition and beginning to work effectively. We base this judgement on the fact that, 1) the almost $4 billion in loss payments from 1981-87 have had an important economic impact to farmers, and 2) in 1987 the gross acres insured reached a record 62 million acres despite the fact that 20%-25% of crop land acres were idled by government set-aside and conservation reserve programs (70-75 million adjusted to 1981 basis). This is the fourth consecutive year of program growth despite fewer planted acres.

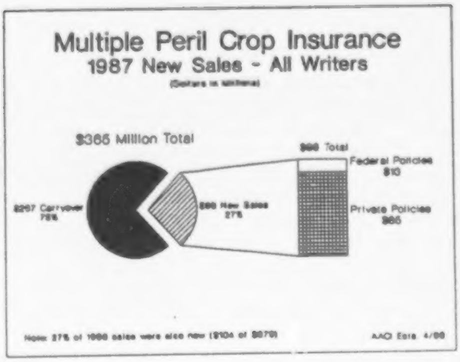
We consciously choose to use gross acres insured as the benchmark to measure progress, because that is the basis on which each farmer must determine whether or not to purchase insurance.





We are aware of the concern expressed by this committee regarding the administrative cost comparison between 1981 and more recent years. Our studies indicate that when the full cost of $91 million for 1981 is compared to current costs and the current acreage insured and premiums are adjusted to the 1981 basis (when there was only limited acreage idled by government programs) the comparison is favorable.

The private industry (all writers) has been most effective in signing up new customers for the crop insurance program. Records indicate that in 1987 the new sales premiums amounted to $98 million. That's about 27% of the $365 million in total premiums written.

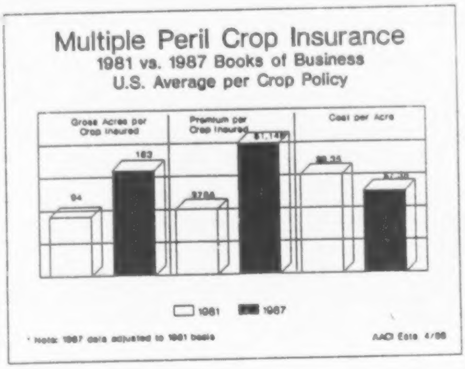


This means that the 1981 and 1987 books of business are almost entirely different. The total new sales for 1986 and 1987 amounted to 55% of the 1987 premiums. With the "shake-out" of farmers that we all know occurred during the period of deep economic crisis in rural America, many of the policyholders of the early 1980s are no longer in the business of farming. An average policy profile for 1981 and 1987, for all writers, shows the following changes:

Characteristic of 1981 vs. 87 Business

| | 1981 Book | 1987 Book | Change |
|---|---|---|---|
| Average Acreage per policy | 94 | 163 | +73% |
| Average Premium per policy | $785 | $1,148 | +45% |
| Average Cost per Acre | $8.35 | $7.35 | -12% |

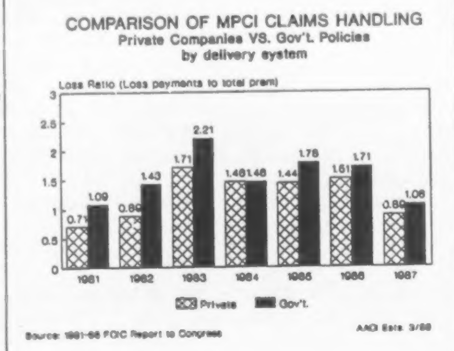
Note: 1987 figures are adjusted to compensate for changes in price elections and acreage reduction of government programs.



Again, we make these comparisons to clearly show that farmers are using crop insurance today as a tool for risk management in the more businesslike operations. We believe that 1987 has brought a new class of business into the program which has resulted from the improved sign-up efforts of the private industry and the improved program that now includes individual yield coverage.

We are pleased with the improved estimated loss ratio for 1987 of .92 which shows the program is being operated on a more actuarially sound basis. This is also the sixth of the last seven years that the gross loss ratio of the risk bearing companies is lower than on directly written policies.

We are all aware that serious claims handling errors were disclosed during the past year in audits by a number of government agencies. While such errors cannot be ignored, some of the publicized error rates and projections of impact appear to have been overstated.



Two additional analyses were done comparing various loss ratios. The first one compared the 1986 and 1987 loss ratio of the assigned risk policies for all writers under the reinsurance treaty with the loss ratios of all FCIC policies. The loss ratios of these assigned risk private company policies were more than 50 percent higher than that of FCIC policies. We believe that this clearly demonstrates that on the aggregate, reinsured companies are placing high risk business on their policies under the assigned risk facility rather than on FCIC policies. This also shows that the reinsurance treaty currently provides an adequate mechanism to handle them.

COMPARISONS OF LOSS RATIOS
Reinsured Assigned Risk and FCIC

| Year | Reinsurance Assigned Risk | FCIC Policies |
|---|---|---|
| 1986 | 2.51 | 1.65 |
| 1987 | 1.84 | 1.06 |

The second analysis was a comparison of the 1987 FCIC policy loss ratios for the total writings with those of six AACI member companies who wrote both private and FCIC policies. The results show that the combined loss ratio for the FCIC policies of these six companies was slightly less than the aggregate loss ratio for the remainder of the FCIC policies.

COMPARISON OF FCIC WRITERS BY GROUP

| | |
|---|---|
| FCIC Polices by AACI members with dual deliveries | 1.05 |
| FCIC Policies by all other writers | 1.07 |
| Average of all FCIC policies | 1.06 |

Therefore, we believe this nullifies past allegations that private companies put the high risk business on federal policies. The other positive fact is that the private risk-bearing organizations are identifying high-risk policies for FCIC.

We believe these three sets of facts clearly show prudent claims handling by the risk-bearing private companies on an aggregate basis.

## FUTURE INCREASES ARE EXPECTED IN FARMER PARTICIPATION

The 1988 sign-up appears to have gone well. We don't have firm numbers yet, because the sales sign-up deadline in most states as April 15. But we would not be surprised if the gross acres insured are up 5%-10% from 1987.

When we look forward to 1989, we have a new sense of optimism, brought about primarily by the fact that FCIC has announced plans to freeze the program. The companies, agencies and agents will have all the information they need to begin to sign up farmers for 1989, if FCIC follows through. This could mean that farmers for the first time will be able to use crop insurance to secure their operating loans with the knowledge of available coverage when they begin the loan application request. Agents will be able to find time to spend talking to new prospects about the program. Furthermore, agents will be able to use a variety of computer decision aids to help growers evaluate the real risk management value of crop insurance. These actions could cause the greatest increase yet in crop insurance program sign-ups.

## NEED FOR STRONG FCIC OVERSIGHT

I mentioned earlier our concerns with program integrity and FCIC's compliance and oversight of all writers of this program. After last year's GAO report, the industry established a task force to focus on the issue of quality assurance. In July, 1987, we provided a comprehensive report to the FCIC Manager that provided recommendations for FCIC and included a prescribed set of actions that the industry service organizations are implementing. Comprehensive recommendations for companies to reduce error rates also have been formulated.

FCIC must take the lead role in policing this program. There is also a need for FCIC to provide advice to help company compliance departments when they encounter complex problems. We are on record, and will continue to encourage FCIC Management to be forthright in monitoring operations of all crop insurance organizations to exercise strong disciplinary actions when they find any writing organization not following the approved rules and procedures. We are pleased with the announcements of Manager Marshall before this committee to strengthen the compliance and oversight by the Corporation and fully support his efforts in that behalf. We also have requested FCIC to make their findings from compliance reviews public so that those organizations that are not doing a good job administering the program will be exposed.

We understand that some individuals have expressed concern that the expense reimbursement rates of the delivery systems may not be appropriate. It is certainly obvious to us that in 1980, when the new legislation was passed and the two delivery systems were set up, the Corporation may not have had adequate information to fully document the rates established for the program as we know it today. FCIC management at that time probably did the best they could to set figures appropriately.

There have been a lot of changes in the administration of this program since then. The private organizations have invested large amounts of resources for personnel and computer equipment to administer this program efficiently. We have seen the basis of coverage shift from using county averages to using up to 10 years of a grower's records, and then annually certifying individual yields subject to spot checks. That certainly adds significantly to the costs of program administration.

I can tell you that in my company, according to the compliance reviews to date, we are operating within the prescribed rules. However, last year it cost us considerably more to administer the program than our expense reimbursement, and that's on a premium base of just under $20 million. As a result of the concern, the Association went on record over a year ago encouraging FCIC management to employ the services of a "Big 8" accounting firm to carefully audit writing organizations of both delivery systems to determine whether the current expense rates are correct. We have also encouraged Manager Marshall to launch this initiative as soon as possible in order to settle the issue once and for all.

### SUMMARY

There is much about this program of which farmers, the government and the industry can be proud.

The primary ingredient that has been missing for the last few years is program stability. This instability caused the rates and rules to be published late and left very little time for new sales. With a program freeze, we will be able to implement a comprehensive marketing program that gives agents and farmers across this great land the first real opportunity to carefully evaluate how crop insurance would work on individual farms. When this happens, many will sign up.

Therefore, Mr. Chairman, we request that you and your committee do everything possible to provide adequate funding for the program. We ask that you use your influence to help stabilize the program, to stay the course and give it a little more time to blossom. Meanwhile, we will continue to encourage FCIC to improve program integrity, compliance and oversight.

We thank you for this opportunity to share our thoughts with you today. The text of the full testimony which is provided for the record, goes into these issues in much more detail. We trust that the committee will review it carefully. We'll be glad to entertain any questions that the committee may have at this time.

## NATIONAL POTATO COUNCIL

### STATEMENT OF BOB SANDERS, IMMEDIATE PAST PRESIDENT

### ACCOMPANIED BY RON WALKER, EXECUTIVE DIRECTOR

Senator BURDICK. Our next witness is Bob Sanders, National Potato Council.

Welcome to the committee, gentlemen. Proceed as you wish.

Mr. SANDERS. Good morning, Mr. Chairman. I am Bob Sanders, and I am the immediate past president of the National Potato Council, and to my left is Mr. Ron Walker, who is the executive director of the National Potato Council. Last year, I testified before this subcommittee regarding the National Potato research proposal. On behalf of the council, we thank you for your assistance in initiating funding for part of the proposal in fiscal year 1988, and we look forward to working with you to expand the funding in fiscal year 1989.

The National Potato Council is a national trade association representing approximately 12,000 potato growers in 37 States. Our growers produce both seed potatoes and potatoes for consumption in a variety of forms. Annual production during the decade of 1975 through 1984 averaged 353,896,000 hundredweight, with a value of $1,572,444,000. Total value is substantially increased through processing.

The potato crop clearly has a positive impact on the U.S. economy. The potato is the most popular of all vegetables grown in the United States. Annual per capita consumption is 120 pounds, up from 107 pounds in 1962. It seems to be increasing due to the advent of new products and heightened public awareness of the potato's excellent nutritional value.

It is considered a stable consumer commodity and an integral delicious component of the American diet. The potato crop has been traditionally controlled by supply and demand in a free market. Government support programs such as price guarantees and acreage set-asides have not been necessary. However, like any other major commodity, potato growers recognize that in order to maintain a viable and competitive industry, we must constantly strive to improve our product.

Through carefully planned and executed research, we believe we can continue to offer an excellent product and remain a viable U.S. agricultural industry.

Last year, during the fiscal year 1988 appropriations cycle, the National Potato Council presented to you and your subcommittee a request for funding for a nine-point research project. As you will recall, the National Potato Research Proposal was the culmination of an intensive effort begun in 1984 working closely with the United States Department of Agriculture's Agricultural Research Service to identify fiscal year national research issues of concern to the potato industry.

Due in large part to your leadership, Mr. Chairman, and the support and interest of all the members of the subcommittee, Congress approved for the first three priority projects the following funding: Ring rot disease, $500,000; early dying disease, $350,000; and marketing, $350,000.

The industry is well aware of your assistance in obtaining this funding, and we deeply appreciate the efforts of the subcommittee, particularly in light of the budgetary difficulties you had to face.

We would now like to build upon last year's success and continue to expand the National Potato Research Program. Specifically, for fiscal year 1989, the National Potato Council requests to increase the funds for marketing by $1,650,000 for a total yearly budget of $2 million as outlined in the proposal.

In addition, we have identified the needs for the remaining six projects as follows: Insects, pertaining to aphids, $800,000; insects pertaining to potato beetles, $2 million; weeds, $1,100,000; varietal development, $800,000; soils, $610,000; and agricultural engineering, $237,000.

It is important to note that representatives of the National Potato Council meet extensively with Ag Research Service officials in late February 1988 to discuss the distribution of fiscal year 1988 funding. The National Potato Council is particularly pleased with the tremendous efforts put forth by the Agricultural Research Service to ensure that the research is conducted in the most thorough and expeditious manner.

The National Potato Council looks forward to working closely with the Agricultural Research Service to maximize the use of these important funds. We would like to mention, once again, the differentiation between regional research priorities and those priorities designed to help the potato industry on a national level.

Variations in regional areas exist and are being addressed on the local level. While there is Agricultural Research Service funding directed to these problems that should be maintained, we are here to discuss separately the national nine-part proposal. The nine projects are deemed to be the most essential national research projects to improve potato production throughout the Nation.

For example, research could be conducted in diseases which affect the industry's ability to promote exports and reduce market losses, thereby ultimately benefiting the domestic consumer.

Further, the National Potato Council believes these research proposals will enhance the overall marketable production of potatoes, therefore, benefiting the grower and consumer without reliance upon costly Federal production subsidies. Each of the nine proposals was outlined in detail, including recommendations concerning the objectives of the research and suggested funding levels lasting from between 1 to 5 years to complete each proposal and was submitted to your committee last year.

The programs and priorities are identical for fiscal year 1989. The National Potato Council will continue to work closely with the U.S. Department of Agriculture to oversee this research and will report periodically to interested Representatives, Senators, and staff who have a strong interest in supporting the potato industry on the status of the research.

We sincerely thank you, and your subcommittee for its generous support of this vitally important research. Thank you, Mr. Chairman. I will be happy to answer any questions.

Senator **Burdick**. Thank you.

Senator **Burdick**. I am pleased that the National Potato Council and the ARS are working together to ensure that priority research projects designated in the 1988 appropriations are well underway. What is the current status of your work?

Mr. **Sanders**. At this point in time, Mr. Chairman, we met with members of the ARS in February, and representatives of the National Potato Council who met with ARS went through recommendations and programs put together by ARS personnel. At that time, we agreed upon the distribution of these ARS funds, which are now in the process of either moving to their position or are already in progress.

This involved distribution pass-through of funds to nine separate States, including three ARS stations, one in Beltsville, one in East Grand Forks, and one in Aberdeen, ID.

Senator **Burdick**. Is it the position of the Potato Council that about $7.2 million should be added to the amount appropriated in 1988 to meet your objectives in 1989, or is marketing your key priority for 1989?

Mr. **Sanders**. We have asked additional funds for marketing as there was a significant remaining balance from last year's appropriation that was not added to marketing. We would, of course, like to add to marketing as we have requested.

At the same time, we would certainly like respectfully to have any consideration made to the next items that we have listed for this year. Marketing is still a priority, certainly. Then our next priorities, as they are listed in order there, we certainly would like to have consideration there for those, too.

Senator **Burdick**. Thank you very much.

Mr. **Sanders**. Thank you.

Senator **Burdick**. Does your associate have any comments?

Mr. **Walker**. Not at this time, Mr. Chairman, except I want to thank you on behalf of the U.S. potato growers.

Senator **Burdick**. Thank you.

[The statement follows:]

## STATEMENT OF BOB SANDERS

Good morning Mr. Chairman and members of the Subcommittee. My name is Bob Sanders. I am the Immediate Past President of the National Potato Council (NPC). Last year as I am sure you remember, I testified before this Subcommittee regarding the National Potato Research Proposal. On behalf of the Council, we thank you for your assistance in initiating funding for part of the Proposal in Fiscal Year 1988 and we look forward to working with you to expand the funding in Fiscal Year 1989.

The National Potato Council (NPC) is a national trade association representing approximately 12,000 potato growers in thirty-seven (37) states. Our growers produce both seed potatoes and potatoes for consumption in a variety of forms. Annual production during the decade 1975 to 1984 averaged 353,896,000 hundredweight with a value of $1,572,444,000. Total value is substantially increased through processing. The potato crop clearly has a positive impact on the U.S. economy.

The potato is the most popular of all vegetables grown in the United States. Annual per capita consumption is 120 pounds, up from 107 pounds in 1962, and seems to be increasing due to the advent of new products and heightened public awareness of the potato's excellent nutritional value. It is considered a stable consumer commodity and an integral, delicious component of the American diet.

The potato crop has been traditionally controlled by supply and demand in a free market. Government support programs such as price-guarantees and acreage set-asides have not been necessary. However, like any other major commodity, potato growers recognize, in order to remain a viable and competitive industry, we must constantly strive to improve our product. Through carefully planned and executed research, we believe we can continue to offer an excellent product and remain a viable U.S. agricultural industry.

Last year during the Fiscal Year 1988 appropriations cycle, the NPC presented to you and your Subcommittee a request for funding for a nine-point research project. As you will recall, the National Potato Research Proposal was the culmination of an intensive effort begun in 1984 working closely with the U.S. Department of Agriculture's (USDA) Agricultural Research Service (ARS) to identify national research issues of concern to the potato industry.

Due in large part to your leadership, Mr. Chairman, and the support and interest of all the members of the Subcommittee, Congress approved for the first three priority projects the following funding: ring rot disease - $500,000; early dying disease - $350,000; and marketing - $350,000. The industry is well aware of your assistance in obtaining this funding, and we deeply appreciate the efforts of the Subcommittee, particularly in light of the budgetary difficulties you had to face.

We would now like to build upon last year's successes and continue to expand the National Potato Research Program. Specifically, for Fiscal Year 1989 the NPC requests to increase the funds for marketing -- by $1,650,000 -- for a total yearly budget of $2,000,000, as outlined in the Proposal. In addition, we have indentified the needs for the remaining six projects as follows:

| | |
|---|---|
| Insects (Aphids) | - $ 800,000 |
| Insects (Potato Beetles) | - $2,000,000 |
| Weeds | - $1,100,000 |
| Varietal Development | - $ 800,000 |
| Soils | - $ 610,000 |
| Agricultural Engineering | - $ 237,000 |

It is important to note that representatives of the NPC met extensively with ARS officials in late February (1988) to discuss the distribution of Fiscal Year 1988 funding. The NPC is particularly pleased with the tremendous efforts put forth by ARS to ensure that the research is conducted in the most thorough and expeditious manner. The NPC looks forward to working closely with ARS to maximize the use of these important funds.

We would like to mention once again the differentiation between regional research priorities and those priorities designed to help the potato industry on a national level. Variations in regional areas exist and are being addressed on the local level. While there is ARS funding directed to these problems that should be maintained, we are here to discuss, separately, the national nine-part proposal.

These nine projects are deemed to be the most essential national research projects to improve potato production throughout the nation. For example, research would be conducted in diseases which affect the industry's ability to promote exports and reduce market losses, thereby ultimately benefitting the domestic consumer. Further, the National Potato Council believes these research proposals will enhance the overall marketable production of potatoes, therefore benefitting the grower and consumer without reliance upon costly federal production subsides.

Each of the nine proposals was outlined in detail, including recommendations concerning the objectives of the research, and suggested funding levels lasting from between one to five years to complete each proposal, and was submitted to your Subcommittee last year. The programs and priorities are identical for Fiscal Year 1989.

The NPC will continue to work closely with USDA to oversee this research and will report periodically to interested Representatives, Senators and staff who have a strong interest in supporting the potato industry on the status of the research. We sincerely thank your Subcommittee for its generous support of this vitally important research. I would be happy to answer any questions you might have.

## SUMMARY OF REQUEST

The National Potato Council (NPC) representing all 12,000 domestic potato producers in thirty-seven states, requests continued funding for ring rot, early dying and marketing national research. For Fiscal Year 1989, the NPC requests funding for the following research projects: 1) $1,650,000 for marketing; 2) $800,000 for insects (Aphids); 3) $2,000,000 for insects (potato beetles); 4) $1,100,000 for weeds; 5) $800,000 for varietal development; 6) $610,000 for soils; and 7) $237,000 for agricultural engineering.

## American Psychological Association

### STATEMENT OF LEONARD A. ROSENBLUM, PH.D., PROFESSOR, STATE UNIVERSITY OF NEW YORK, HEALTH SCIENCE CENTER AT BROOKLYN, ON BEHALF OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

Senator **Burdick**. Our next witness will be Dr. Leonard A. Rosenblum, professor, State University of New York, American Psychological Association.

Welcome, Dr. Rosenblum.

Dr. **Rosenblum**. Thank you, Mr. Chairman. I am Dr. Leonard Rosenblum, a research psychologist from the State University of New York Health Science Center at Brooklyn. On behalf of the American Psychological Association, a scientific and professional organization representing 90,000 psychologists, I thank you for the opportunity to express our views on the critical needs for enhanced funding in fiscal year 1989 for the Animal Welfare Program of the Animal and Plant Health Inspection Service. In addition to my comments today, we would like to submit a more detailed statement for the record.

Strong enforcement of the Animal Welfare Act, the congressionally mandated responsibility of APHIS, is an essential component to ensuring that laboratory animals are afforded appropriate care and treatment while still ensuring continued progress in vital biomedical and behavioral research programs.

Nonetheless, past levels of funding for the APHIS Animal Welfare Inspection Program have been woefully inadequate to allow that agency to carry out its mandated responsibilities. APA believes that the fiscal year 1989 budget request of $4.9 million, a reduction of 21 percent below the fiscal year 1988 appropriation, is inconsistent with the agency's needs, responsibilities and current level of expenditure.

APHIS animal welfare inspectors are responsible for evaluating conditions at approximately 6,900 registered and licensed facilities. Over 13,000 animal welfare inspections were conducted in fiscal year 1987. Inspectors evaluate conditions for some 4.6 million animals, representing nearly two dozen different types of the most widely studied animals.

Nonetheless, despite the overwhelming magnitude of the agency's enforcement responsibilities, only about 2 percent of the entire APHIS budget and less than 1 percent of staff time are devoted to animal welfare inspection. Only four animal care specialists work full time on annual welfare enforcement.

Approval of the proposed $4.9 million for the animal welfare portion of the APHIS budget clearly would limit the agency's abilities to conduct suitably frequent and substantive inspections of animal laboratories. APHIS officials have indicated that this level of funding would require the agency to reduce the average number of inspections by half.

Further, with this level of funding, APHIS would have very limited funds available for professional development of its staff, a clear need within the agency. In fiscal year 1987, APHIS had the resources to devote only 6 percent of its budget to staff training.

Effective enforcement of the Animal Welfare Act is a difficult task that demands significant expertise. To implement, for example, congressionally mandated provisions that research facilities attend to the different needs of the various species of animals used in research, one needs a sophisticated appreciation of behavioral and psychological variables, as well as knowledge of laboratory animal medicine.

Nonetheless, only one member of the inspection staff has formal training in laboratory animal medicine, and as best as we can determine, none have specific training in the behavioral sciences. While the expertise to train inspectors exists within the scientific and veterinary communities, APHIS has not been able to systematically take advantage of these resources to develop its inspection staff into a well-rounded and sophisticated team. Insufficient breadth and depth of training within the Inspection Service undermines the program's credibility with the scientific community, as well as the public's confidence in the establishment of national standards of animal welfare consonant with our Nation's critical research needs.

In recent years, this subcommittee has had the foresight to preserve the APHIS Animal Welfare Program. We ask you now to provide the agency with funds that will facilitate APHIS' ability to enforce valid and consistent standards. APA recommends that $10 million be appropriated for fiscal year 1989 for the APHIS animal welfare program. We believe that this level of funding is necessary to ensure high quality inspections and to permit enhanced training for inspectors.

A strong animal welfare program will confirm to the public and to the scientific community that Congress has a strong commitment to ensuring that animal research will progress and that its progress will be humane and responsible.

Thank you very much for your consideration. I will be happy to answer any questions you might have.

Senator **Burdick**. Thank you.

Your proposal of $10 million for the Animal Welfare Act would increase the appropriations by more than 50 percent. How many additional inspectors could be trained and maintained according to your proposal?

Dr. **Rosenblum**. I don't have those figures here, Mr. Chairman. We would be happy to provide them. The important thing is that these inspectors, however many we have, will be able to receive the kind of training necessary to permit them to ensure that animal welfare is maintained while at the same time ensuring that vital research can progress.

In the absence of that training, and in the absence of appropriate time to carry out detailed and substantive inspections, we stand the possibility of having vital research programs either curtailed or terminated or, of equal importance, failing to ensure that the welfare of animals under these facilities are maintained in the way in which the public wishes to have them maintained.

Senator **Burdick**. Would this funding level be adequate to protect animals used in research?

Dr. **Rosenblum**. In our judgment, it will, Mr. Chairman.

Senator **Burdick**. Thank you very much.

Dr. **Rosenblum**. Thank you.

[The statement follows:]

## STATEMENT OF LEONARD A. ROSENBLUM

Mr. Chairman, Members of the Subcommittee, I am Dr. Leonard A. Rosenblum, a research psychologist from the State University of New York Health Science Center at Brooklyn. On behalf of the American Psychological Association (APA), I thank you for the opportunity to express our views on the critical need for enhanced funding for fiscal year 1989 for the animal welfare program of the Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture.

APA is a scientific and professional organization representing 90,000 psychologists. Some within our membership, including myself, conduct animal research -- research that impacts on our understanding and treatment of human and animal physical and psychological conditions. Since 1925, decades before public and congressional attention, the Association has had a Committee on Animal Research and Ethics to address scientific and ethical issues related to the use of animals in research. I have twice served on this committee, most recently since 1986.

The 1966 Animal Welfare Act and its 1985 amendments regulate the use of animals in research. APHIS enforces the Act through licensure, registration, and annual inspections. Institutions are required to meet standards for handling, housing, feeding, sanitation, and veterinary care. Strong enforcement of the Animal Welfare Act -- a congressionally-mandated responsibility of APHIS -- is an essential component to ensuring that laboratory animals are afforded appropriate care and treatment. The well-being of animals used in research is of critical importance both as an ethical obligation and also because the provision of humane care is a vital component to good science. Only animals that receive adequate care can serve as good research models.

APA recommends $10 million be appropropriated for FY 1989 for the APHIS animal welfare inspection program. Past levels of funding for this program, as well as the fiscal year 1989 budget request, have been woefully inadequate to allow that agency to carry out its mandated responsibilities in a manner consistent with current knowledge of animal welfare, animal health, and animal behavior. This is particularly troublesome in light of the 1985 amendments to the Animal Welfare Act that increased the scope of the program.

APA particularly is concerned about improving the quality of the inspection process. We believe that increased funding for the training of inspectors will result in marked improvements in the services provided by APHIS to the nation's biomedical and behavioral research enterprise.

### IMPACT OF ADMINISTRATION'S BUDGET RECOMMENDATION

APA believes that the FY 1989 budget request of $4.9 million for the animal welfare program -- a reduction of 21 percent below the FY 1988 appropriation -- is inconsistent with the agency's needs, responsibilities, and current level of expenditure. We are not alone in our concern about the inadequacy of the APHIS budget. In 1986, the Office of Technology Assessment concluded that APHIS funding was insufficient to adequately monitor laboratory animal care. Earlier, in 1985, a General Accounting Office report found a serious lack of training for inspectors in recent years.

Inspections serve as the public's assurance that laboratory animals are being properly maintained. APHIS inspectors are responsible for evaluating conditions regulated by the Animal Welfare Act at approximately 6,900 registered and licensed facilities -- 1,300 research facilities, 3,800 licensed dealers, 1,400 exhibitors, and 400 intermediate animal handlers. Over 13,000 animal welfare inspections were conducted in FY 1987.

Yet, despite the overwhelming magnitude of the agency's enforcement responsibilities, only about two percent of the entire APHIS budget and less than one percent of staff time are devoted to animal welfare inspection. Another indicator of the agency's limited staff resources is that, of the 324 veterinary field staff employed by APHIS, only 4 are animal care specialists working full-time on animal welfare enforcement. Virtually all other field veterinary officers serve primarily as inspectors for other APHIS programs, with animal welfare just a minor component of their job.

Approval of the proposed $4.9 million for the animal welfare portion of the APHIS budget would clearly limit the agency's ability to conduct suitably frequent and substantive inspections of animal laboratories. APHIS officials have indicated that this level of funding would require the agency to reduce the average number of inspections by half. Further, with this level of funding, the agency would have very limited funds available for professional development of its staff.

Effective enforcement of the Animal Welfare Act is a difficult task that demands significant expertise. To implement, for example, congressionally-mandated provisions that research facilities attend to the different needs of the various species of animals used in research, one needs a sophisticated appreciation of behavioral and psychological variables as well as knowledge of laboratory animal medicine. Yet, only one member of the APHIS inspection staff has formal training in laboratory animal medicine and, as best as we can determine, none have specific training in the behavioral sciences.

While the expertise to train inspectors exists within the scientific and veterinary communities, APHIS has not been able to systematically take advantage of these resources to develop its inspection staff into a well-grounded, sophisticated team. With due respect to the capabilities of the APHIS training staff as well as to officials from other agencies that may assist in training, insufficient breadth and depth of training within the inspection service undermines the program's credibility with the scientific community as well as the public's confidence in the establishment of national standards of animal welfare consonant with our nation's critical research needs.

It is critical that funds are made available to train inspectors about species-typical behavior and biological needs. This will permit inspectors, in cooperation with researchers and other specialists, to better assess if the animal environments are adequate and, most importantly, appropriate for a particular species in relation to the specific scientific purpose for which they are being studied. To put this need in perspective, during the course of inspecting regulated facilities, inspectors must evaluate conditions for some 4.6 million animals, representing nearly two dozen different types of the most widely studied animals.

In FY 1987 with an actual expenditure of $6.6 million dollars -- 28 percent higher than this year's budget request -- APHIS had the resources to devote only six percent of its budget, about $400,000, to staff training costs. This figure includes salary, benefits, and travel for both the instructors and the trainees. Appropriately recognizing the need for training specific to laboratory environments, the agency has devoted approximately half of its limited training funds to facilitate evaluation of compliance by research facilities. Nonetheless, the training provided has been, for the most part, procedurally-oriented -- how to conduct inspections, what are the requirements under the Animal Welfare Act. While we believe training on such matters is imperative, and we are pleased that APHIS is beginning to focus on these issues, training to provide inspectors with specific expertise in animal health and behavior is needed.

## RECOMMENDATION

APA, as well as other scientific and animal welfare organizations, strongly supports measures that would facilitate consistently high quality inspections. Over 100 scientific and animal welfare organizations, including APA, the National Association for Biomedical Research and the Society for Animal Protective Legislation have joined together to send the message to Congress that significantly more funding is required if APHIS is to fulfill its responsibilities under the Animal Welfare Act.

In recent years, this Subcommittee has had the foresight to preserve the APHIS animal welfare program, despite efforts of the administration to eliminate or reduce these responsibilities. Congress appropriately recognized the need for a federal program to enforce national standards of laboratory animal care and use. We ask you now to provide the agency not only with funds to preserve the status quo, but also with funds that will facilitate APHIS' ability to enforce valid and consistent standards.

APA recommends that $10 million be appropriated for FY 1989 for the APHIS animal welfare program. We believe that this level of funding is necessary to ensure high quality inspections and permit enhanced training for inspectors. A strong animal welfare program will confirm to the public and to the scientific community that Congress has a strong commitment to ensuring that animal research will progress and that its progress will be humane and responsible.

## NATIONAL PORK PRODUCERS COUNCIL

### STATEMENT OF JIM HAUGE, EXECUTIVE COMMITTEE AND BOARD OF DIRECTORS

Senator BURDICK. Our next witness will be Jim Hauge, Leith, ND, National Pork Producers Council.

We are pleased to see you back again.

Mr. HAUGE. Mr. Chairman, I am glad to be back again.

Senator BURDICK. You are always welcome on this committee.

Mr. HAUGE. I am pleased to have this opportunity to present the position of the National Pork Producers.

Senator BURDICK. Could you bring the mike a little closer to you?

Mr. HAUGE. I am Jim Hauge from Leith, ND. I am a member of the executive committee of the National Pork Producers, and I am pleased to have this opportunity to come before this committee again this year, as I did last year.

We also want to thank you for your past and present support of our issues. At this time, I would like to defer from my prepared statement and go to oral testimony. Mr. Chairman, we are especially concerned about pseudorabies again this year, as we were last year. We thank you for your support last year of getting $2.4 million into the budget. This year, we are asking for $2.8 million.

However, since APHIS took an appropriate amount for administration costs last year of about 14 to 15 percent, we thought that in our original proposal, we would have $2.4 million for program benefits only and, so this year, we are asking for $2.8 million plus an appropriate amount for administration costs.

Mr. Chairman, as you probably know, pseudorabies has been in this country for many years. It has been a problem in about the last 15 years. It annually costs producers an estimated $30 million. Although vaccines are available, these vaccines only help control the disease so that producers can live with it. They do not eliminate it. So vaccinated animals can spread this disease to other swine; they can spread it to other domestic farm animals; and they can spread it to pets, also.

This proposed eradication program would be cost shared by the Federal and State governments. In addition, the producers would also help pay for this program. It is estimated that it costs a producer about $45 a sow to eradicate pseudorabies from his farm. This same producer would spend about $45 a sow to vaccinate his herd in a 2-year time period. He would still have the disease, and his swine herd would still be able to spread the disease to other farms.

This year is supposed to be the transition year between the pilot projects and the eradication program. I am pleased to announce we have made great progress. We are farther ahead than what anybody would have anticipated. Thirty-six States have State committees in place, and some of them have eradication programs in place. These 36 States represent 95 percent of the Nation's hogs.

So, Mr. Chairman, in order to continue our progress and in order to continue this program, we do need this funding, and we are asking the subcommittee for that.

Mr. Chairman, I am chair manager of NPPC's Research Selection Committee, and I can assure you that we also have a keen interest in agriculture research. We would ask for the continuation and expansion of the Meat Animal Research Center at Clay Center, NE. MARC is the major thrust of USDA swine research, and we would ask that you also would support this.

We also feel that biotechnology offers great promise to fill a potential need in the future for swine producers. The pork producers have a long track record of producing wholesome, nutritious, tasteful product at the most efficient price.

We feel that biotechnology, continued swine research, in the Extension Service will help us fill this mission. Mr. Chairman, we want to continue to work with FSIS. FSIS is becoming increasingly important in the marketing of our product and how we conduct our business. We want to keep the lines of communication open between Congress, FSIS, and producers.

In conclusion, the National Pork Producers Council appreciates your present and past support of these programs and the other programs I have discussed today and that are written in the printed testimony. I believe that we can assure the Nation's pork producers of a solid foundation on which to build their plans with the help of this subcommittee.

Again, I want to thank you, and I will be happy to try and answer any questions.

Senator BURDICK. Thank you. Several of the witnesses at our hearings have suggested that the additional funding for biotechnology is imperative. Do you think that biotechnology research should be offered to competitive grants?

Mr. HAUGE. Mr. Chairman, I believe that the competitive grant program has had a good track record in the past of producing meaningful results at a good cost to the government. We don't have a position on this specifically, but just judging by what this program has done in the past, I would say that this would probably be a pretty good deal for the Government.

Senator BURDICK. You mentioned in your testimony that the vaccine for pseudorabies is only a control measure. What is the best possible direction for research if we hope to eradicate the virus?

Mr. HAUGE. Well, there are many exciting things happening on the pseudorabies front as far as this eradication program. Originally, I believe that producers in the hog belt thought they could live with this disease, and they have found out that they can't, because it goes into latency, and there are symptoms, subclinical signs, that cost these producers a lot of money.

As far as getting back to your question as far as the direction that research should be going, we are working with our Research Selection Committee. We approved several pseudorabies research proposals in trying to learn more about the latency of this disease.

Also, with the knew biotechnology vaccines, where they can differentiate between the positive animals and the vaccinated animals, there is great progress being made in the research of this at this time.

Senator Burdick. Certainly, control is necessary, and I believe that control could lead just as well to eradication at the same time, couldn't it?

Mr. Hauge. A vaccine alone won't eradicate the disease, because it is of a herpes virus nature, and the virus is too unpredictable for the vaccine to eradicate it or to completely control it. With the vaccinated animals, it gets it down to a level where every time a sow comes in the farrowing house, she won't abort or won't abort previous to coming into the farrowing house and these types of things, but the disease is in a more subclinical type nature where it just kind of nickels and dimes the producer to death rather than the animals just dying.

Senator Burdick. You mention in here that the figure of $2.8 million for pseudorabies is perhaps too low, that appropriation.

Mr. Hauge. Last year, we requested $2.8 million, and we were granted $2.4 million. What we didn't anticipate was the 14- to 15-percent administration costs for APHIS coming off of that, and we were anticipating that all those moneys going for program benefits rather than administrative costs. So this year, we are requesting $2.8 million plus an appropriate amount for administration costs.

Senator Burdick. OK. Thank you very much.

Mr. Hauge. Thank you.

[The statement follows:]

## STATEMENT OF JIM HAUGE

I am pleased to have this opportunity to testify before you today on the Fiscal Year 1989 Budget for the U.S. Department of Agriculture. As a member of the Executive Committee and the Board of Directors of the National Pork Producers Council (NPPC), I want to personally thank you for your support of the pork industry in the past.

I will be testifying on behalf of NPPC and its 100,000 pork-producing members. NPPC is the largest commodity dues-paying organization in the United States and accounts for more than 90 percent of the nation's commercial pork production.

Although we believe that the future of our industry is in our own hands, pork producers are convinced that we will need the cooperation of the federal government to undertake certain research programs and coordinate national efforts such as the control and eradication of pseudorabies.

Advances in production technology, of course, will continue to enhance the well-being of the American consumer by providing an abundant, safe supply of reasonably-priced lean and wholesome food, while keeping the U.S. pork producers competitive in the international marketplace.

But research expenditures for the improvement of animal agriculture have not been proportional to expenditures on plant research. Although livestock producers make up approximately 50 percent of total agricultural income, animal agriculture does not receive anywhere near 50 percent of the research dollar. In fact, only slightly above 2 percent of the total budget for U.S. agriculture is swine specific.

### Animal and Plant Health Inspection Service (APHIS)

Although we originally intended to seek only $2.8 million for pseudorabies (PRV) in fiscal year 1989, it appears that this amount is insufficient to cover all of APHIS' costs for overhead and staff activities. APHIS unexpectedly allocated 14-15 percent of the fiscal year 1988 funds to administrative costs. Therefore, we request that the line item in the APHIS budget for PRV be increased to $2.8 million plus an appropriate amount to cover administrative costs in fiscal year 1989. A shortage of funds will otherwise impede the states' progress in eliminating PRV.

The disease is costing the pork industry an estimated $30 million per year. Although PRV has been present in the U.S. for many years, it was only in the last 15 to 20 years that it has become a significant problem to swine. The disease causes major death losses in suckling pigs, abortions and resorption of fetuses in pregnant sows, and reduced growth rates in growing-finishing pigs.

The disease is caused by a virus of the herpes group. PRV can effect most domestic farm animals, dogs and cats, and many species of wildlife. A vaccinated pig can become infected, harbor the virus for long periods of time, and ultimately infect other pigs. Although the vaccine can prevent death losses, it does not prevent infection. Therefore if the vaccine is relied upon as the only control measure, the virus may continue to spread throughout the swine population, resulting in the need for vaccinating the pigs every year, and increasing the total cost of this control measure.

We understand that APHIS supports this much-needed program, and in fact, has commended us in our efforts in developing the PRV eradication plan. We look forward to working with APHIS in their coordinating role for this ten-year animal health program.

We believe that the programs within the APHIS budget that protect the animal resources of this nation from economically dangerous diseases are extremely important to the future of our industry. In that regard we support the Administration's increases in the 1989 budget for the swine health protection program and for animal disease detection.

We are also supportive of the Administration's request for an additional $1 million for the biotechnology program in fiscal year 1989. APHIS will need a sufficient number of scientists and regulatory officials to ensure that the technology can be accomodated in the U.S., so the technology is not forced to go to our foreign competitors.

## Agricultural Research Service (ARS)

Animal research productivity has produced added value in the farm and food system of significant magnitude to yield extraordinarily high rates of return to research investment. However, producers are not the only ones who benefit through animal research. Consumers are the ultimate beneficiaries of agriculture research through lower prices paid for efficiently produced products.

NPPC endorses the continuation and expansion of research that would lower costs and enhance production through improved genetics and breeding. Therefore, we urge the expansion of swine production research facilities at the Meat Animal Research Center (MARC) in Clay Center, Nebraska. The swine production research programs at MARC account for the major USDA effort on pork production. The programs make significant contributions to the efficiency and competitiveness of U.S. producers.

In order for swine researchers to be able to study the full range of problems in the production cycle, we are requesting an additional appropriation of $4 million to increase the capacity of the swine facilities at MARC. Given the severe budgetary constraints, we would be interested in pursuing funding for swine facilities at MARC over a 5-year period of time. In fiscal year 1989, we are only seeking $670,000 to cover the start-up costs of the program (i.e. for the project design, site work, roads, utilities, lagoon, lift station, and domestic well). We would seek funding for a new finishing barn and modifications to various buildings at MARC over the next four years.

The present facilities at MARC severely limit the ability of researchers to provide answers to the many problems of pork producers. Upgrading and expanding the swine facilities to meet the needs of genetics and breeding research will allow for expansion into new areas such as genetics of reproduction, lean tissue growth, disease resistance, and gene transfer, together with animal health and production systems research. It also should increase interaction of research units and allow diversification into areas not currently studied, such as carcass evaluation, muscle quality, and meat safety assurance. Morever, updated facilities could be used to evaluate Chinese hogs and other potential breeds that have yet to be studied by U.S. swine researchers.

We also support efforts to expand research on means to minimize agricultural impacts on groundwater. Pork producers recognize that the future of agriculture in this country is tied to the continued availability of an adequate supply of good quality water.

## Cooperative State Research Service (CSRS)

Agricultural experiment station system with research programs distributed in all fifty states and U.S. territories, coordinated by the Cooperative State Research Service and combined agricultural interests, brings together state and private resources with federal funds to form the ideal partnership to provide answers to America's agriculture problems. Proper use of the knowledge generated by agriculture research through education and extension will assure the most appropriate application of research.

Animal disease losses cost the American farmer, and thus the public, nearly $17.5 billion annually. Significant reductions in these losses are essential if the annual income from the sale of livestock products is to continue to represent nearly 50 percent of U.S. farm income and livestock products are to continue to be readily available. Intensified and expanded research is needed to find solutions to the most serious animal health problems that limit the efficient production of animal food products. Recent technological advances in the biological and medical sciences that would be applied to veterinary medical problems offer promise of major breakthroughs in the diagnosis, prevention and control of food and animal health hazards. Research that allows the industry to rely less on antibiotics and more on natural immunity and superior genetics would be extremely helpful.

The Section 1433 formula-based funding program has proved effective in improving the health and productivity of animals and the welfare of producers and consumers of animal products, while also protecting human health by controlling animal disease transmissible to humans and minimizing livestock losses caused by transportation and handling. We are disappointed to see that the Administration's budget did not propose any funds for animal health research under Section 1433. Therefore, NPPC recommends that Congress provide $5.9 million for Section 1433 research, as recommended by the National Association of State Universities and Land-Grant Colleges (NASULGC).

Animal health research under the Special Research Grants Program (Sec. 2c) has emphasized the solution of high priority-nationally important problems, and we believe diseases specifically to the swine industry should demand serious consideration. Thus, NPPC recommends that Section 1414 be funded at the $5.7 million level as recommended by NASULGC.

Animal health research grants and animal health projects funded under the Competitive Research Grants Program (Sec. 2b) have helped initiate high quality, productive research for various diseases affecting U.S. pork producers. We are pleased to see that $54.5 million is in the Administration's budget for competitive research grants. However, we support increasing the budget to $10 million for the animal science portion of the competitive research grants program from the $7 million requested. NPPC has stressed, in several statements, that there is a dire need for good research in animal production. The research bank has almost been exhausted, and we are now in need of real breakthroughs to allow animal production to maintain its competitive position in the total U.S. agricultural industry and with foreign producers.

Biotechnology offers great promise to fill a potential need in the future. We believe that our producers will be a major beneficiary of the scientific advances through biotechnology that show that hormones can dramatically improve the quality and nutritional value of meat animals. Specifically, the porcine growth hormone has shown that it can significantly upgrade and improve our production technology through leaner meat that maintains flavor and tenderness, while lowering production costs.

Pork producers have historically been among the leaders in the food production business in striving to provide high quality food products to the consuming public as efficiently as possible. Our major concern is that the techniques and the resulting products be safe and that the consuming public must have confidence in that fact. We look forward to working with other segments of the food industry and with the federal government in fostering educational and informational programs concerning new developments in the field of biotechnology. Our goal is to have full and open discussion among producers and the consuming public before new biotechnologies are approved and implemented.

It is clear to us that future productivity gains required to maintain and enhance the competitiveness of U.S. farm products in international markets depend heavily on new research achievements in the biotechnology and information and management sciences. To facilitate development and exploitation of the new biotechnology and other emerging technologies, research and development activities need to be reviewed so that future research resources are properly allocated. Hence, we strongly support a major increase in the competitive grants research for biotechnology.

We are convinced that increases in competitive research grants will increase the training the young scientists who are necessary for U.S. agricultural research to maintain its position technologically. This basic research, which will be conducted under the Competitive Research Grants Program, is a fertile training ground for young scientists who must fill the ranks of those senior scientists who are constantly being lost to attrition.

There is an obvious need for veterinarians to receive further education in regards to the prudent use of drugs for large animals. Although pork producers will continue to work with veterinarians on prudent drug usage, NPPC encourages the federal government to ensure that veterinary school curricula include large animal training with specialization in production practices and drug use.

Food Safety and Inspection Service (FSIS)

The Food Safety and Inspection Service (FSIS) looks to play a key role in the continued ability of pork producers to have a workable system of marketing their hogs.

As you know, we have been working to resolve the sulfamethazine residue issue. Sulfamethazine is used primarily as a feed additive for young pigs to control respiratory problems. Even though the producer may follow a 15-day withdrawal period prior to slaughter or has not even used the drug, producers fear misplaced liability from cross-contamination during transportation and/or during commingling at the slaughter establishment.

NPPC has been commended for its efforts in response to potential health concerns about the use of sulfamethazine. We have asked producers to suspend the use of sulfamethazine in all its forms until the FDA takes appropriate action with respect to the drug. In the meantime, the future of U.S. pork production is in the hands of FSIS. We are supportive of a Sulfa-On-Site (SOS) test, as a quick screening method for use on the farm. However, we are concerned that this new system may not be workable at the slaughter establishment, if false-positives are excessive. We ask that FSIS continue to work with our producers to ensure that we do not disrupt the marketing of livestock and unnecessarily burden livestock producers who are in no position to have complete lots held up for technical reasons.

In addition to the SOS test on the farm for pre-testing live hogs before they are marketed, we are hopeful that the swine identification program can be easily implemented so as to establish a nationwide traceback system to the farm of origin. This identification system should lead to improvements in animal health, while providing an opportunity for producers to obtain slaughter data, including health and carcass quality information.

We are also working with FSIS on a verified production control (VPC) program that would provide an opportunity for pork producers to voluntarily comply with the plan that would allow them to market their hogs as residue free. The VPC program will provide an opportunity for producers to identify and correct any problems with contamination early on in production, or at least before the animals leave the farm.

We are encouraged that FSIS has approved a new enzyme-linked immunosorbent assay (ELISA) test. The test has been used by the laboratory of Lundy Packing Company, in Clinton, N.C., to detect trichina in pork. Although FSIS has given provisional approval for the test at this particular plant, it has not certified its use for other plants. The test allows the pork to carry a "certifed pork" label that includes the explanation "trichina tested."

In these trying times for the pork industry, we want to make sure that we continue to have the lines of communication open between FSIS, Congress, and producers.

## Extension Service (ES)

Extension Service has a long impressive record of being instrumental in new technology transfer from research to the farm level. The Extension Service (ES) obviously has been instrumental in helping farmers become more efficient, by providing the information necessary for producers to enhance the possibilities for profit.

NPPC joins with the NASULGC in recommending $15 million for Extension Special Programs on competitiveness and profitability of agriculture.

It is critical to pork producers that extension be funded so that programs such as the Residue Avoidance Program and Integrated Resources Management can continue. Funds need to be identified as a line item in the FES budget for Residue Avoidance Programs in livestock similar to that of pesticide impact assessment and integrated pest management that applies to crops. Currently funds are provided for this work only when they are available and redirected from FSIS to the Extension Service. We urge that at least $150,000 be provided for Residue Avoidance Programs in livestock.

## Conclusion

The National Pork Producers Council appreciates your support of the many programs discussed here today. With help of this Subcommittee, I believe that we can continue to provide sufficient funds to ensure that U.S. pork producers have a foundation to build on in the future. Your support, without doubt, is key to the continued viability of our industry as we maintain our productivity and our competitiveness into the future.

## SOCIETY FOR ANIMAL PROTECTIVE LEGISLATION

### STATEMENT OF CHRISTINE STEVENS, SECRETARY

Senator **BURDICK**. Our next witness will be Christine Stevens, Society for Animal Protective Legislation.

Good to see you again.

Ms. **STEVENS**. Thank you, Mr. Chairman. It is good to be here. I am happy to have appeared after Dr. Rosenblum, who has already put an excellent case for increased funding for the Animal Welfare Act. His is from the scientific standpoint; ours is primarily from the animal welfare standpoint, but as I am sure you know from having a copy of this letter which has over 100 different groups, both scientific and animal protective, this is a strongly supported program from what often are considered two opposite sides.

The reason for that is that agriculture has done a remarkable job. It deserves far more praise than it gets, and it has done it with absolutely minimal funding. You pointed out that we are all asking for $10 million, which is slightly more than double what the budget request is. However, I know that your committee last year recommended $7 million, and the final amount was, after conference with the House, $6,197,000.

We don't have to start way down there at only half. It should move up, not only at all because of the fact that the dollar isn't worth as much as it used to be, but because if the inspections are only once a year, and this is very, very dangerous. I can't emphasize how serious it is. This is what the inspectors have been told, that they should only inspect once.

But that means that it totally undermines the effectiveness of unannounced inspections. Without unannounced inspections, you really don't have inspections. After the single inspection, there is no longer any incentive for licensed or registered facilities to maintain the standards set by the Secretary of Agriculture because they know they will not be inspected again for another year.

Without repeated unannounced inspections, both scientific institutions and animal dealers who supply them coast downhill with regard to the care and treatment of the animals they maintain. This has been demonstrated over and over again.

I think, Mr. Chairman, you are familiar with the animal welfare book, Animal Welfare Institute, "Beyond the Laboratory Door." That gives a great deal of documented information. The first part comes from reports by veterinary inspectors of USDA which were obtained under the Freedom of Information Act. I would like to submit this for the committee's use so that you can see how difficult it is.

The inspector goes in; he says, "Do this, and I am coming back within such-and-such a period." He comes back and he finds that that has been corrected, but some other deficiency has occurred. This happens a great deal of the time. What it means is that if you have no more than one inspection a year, you have low quality, and in some cases, absolutely intolerable low quality.

Some of the dog dealers simply, once they see that that is the last time they have to be inspected, they may not even feed the dogs, and they certainly won't clean them, and they won't have proper veterinary care or any of the other minimum requirements which are so important for the quality of research in this country.

So I would like to close with a few points that I have made in my written testimony which I have submitted, first, for the record. The savings of taxpayers' money resulting from adequate funding of the Animal Welfare Act can be counted on to greatly exceed the appropriation itself.

We are able to affirm this fact only through our scrutiny of inspection reports for the past six years. Year after year, USDA's veterinary inspectors find large numbers of serious deficiencies in care and treatment of laboratory animals used in research funded by the Federal Government.

It is they who insist that the registered research facilities meet minimum standards without which reliable research data cannot be collected. If our Nation is serious in seeking health advances through the use of laboratory animals, we must insist upon an appropriation of the $10 million necessary to ensure that the health of these animals is maintained. Otherwise, we endanger the billions of dollars of research funds appropriated in the hopes of finding cures for dread diseases.

For the sake of suffering humans and animals alike, we strongly urge this distinguished subcommittee to appropriate the funds that more than 100 organizations from both the research community and animal welfare community have united in recommending. Thank you, Mr. Chairman.

Senator BURDICK. Thank you. If $10 million were approved for implementation of the Animal Welfare Act, do you believe this would be sufficient to assure that laboratories meet minimum standards for the protection of these animals?

Ms. STEVENS. That is a hard question. Now, I can't guarantee that, Mr. Chairman. I would like to be able to say that. What I can say is that if it is appropriated, a really solid piece of work can be done. I can't promise that it will be 100 percent, because I think that may be even impossible.

But it would be such an enormous improvement over what is going to happen if there is only one inspection a year that it is just incomparable.

Senator BURDICK. My question asks for a minimum standard for protection of the animals.

Ms. STEVENS. Right, minimum.

Senator BURDICK. Could that be assured?

Ms. STEVENS. Is that what?

Senator BURDICK. Could that be assured?

Ms. STEVENS. No, not even minimum. I am sorry to say this. It is shocking, and that is why I would like to have you look at that book. We are appalled, when we look into what people who have control over animals will allow to have happen, a great deal simply through neglect, because if you stick an animal in a cage and then you don't do anything, and go away, you have got cruelty. You don't have to come out and hit him with a stick.

If he has no water or filthy water that he can't drink, no food, improper so he can't stand up or lie down, all those things are common, and they have to be fought against constantly. As I say, we can be very grateful to agriculture inspectors for what they have done, but right now, what is happening is that there is attrition. When an inspector leaves, maybe retires or is transferred to something else, they don't hire a new one. We have got to be sure they have the money.

You asked Dr. Rosenblum, how many. We have an answer here. May I introduce Cathy Liss of our staff, Mr. Chairman.

Ms. LISS. I just called in and found out that there are approximately 275 people in the field. However, not all of them will be doing animal welfare work. With an increase to $10 million, it would, hopefully, be able to do at least two to three inspections a year, which would be getting back to what they had done a couple of years ago.

Senator BURDICK. Does your society work to eliminate the use of animals in research?

Ms. STEVENS. No, no. Our society has always taken the middle ground and tried to create a joining of everyone who wants humane treatment of animals, and that is obviously the large majority of the American public with properly conducted animal research that uses a minimum number of animals to obtain a maximum of scientific information that will be of value.

That is our position. We are the middle ground, and we are delighted that this is coming together through the work of agriculture, but it must have the proper support. It has been starved.

Senator BURDICK. Thank you very much.

[The statement follows:]

## STATEMENT OF CHRISTINE STEVENS

The work of Veterinary Services in enforcing the Animal Welfare Act should serve as a model for the federal government in accomplishing more work per dollar appropriated than any other nationwide regulatory program. Nevertheless, it has always been starved for funds, and even though it accomplishes an amazing amount of work, it has never been able to do its task fully. We urge that $10 million be appropriated for Fiscal Year 1989 in order to carry out the requirements of the Act, including the Improved Standards for Laboratory Animals amendments passed at the end of 1985.

Because of inadequate funding, inspectors are not being required to make more than one inspection a year. This system undermines the effectiveness of unannounced inspections. Indeed, after the single inspection, there is no longer any incentive for licensed or registered facilities to maintain the standards set by the Secretary of Agriculture because they know they will not be inspected again for another year. Without repeated unannounced inspections, both scientific institutions and animal dealers who supply them coast down hill with regard to the care and treatment of the animals they maintain.

Inspections are essential in order to keep a reasonable level of compliance with the minimum standards. Without sufficient funding to provide four inspections a year, high standards simply will not be maintained in all of the premises of registrants and licensees. In other words, the intent of Congress will not be carried out, nor will the expectations of the American public, which so strongly supports the Animal Welfare Act.

In 1987, $5,937,000 was appropriated; in 1988, $6,197,000 was appropriated. But the budget request for 1989 is only $4,922,000. This is totally inadequate. It should be doubled.

The savings of taxpayers' money resulting from adequate funding of the Animal Welfare Act can be counted on to greatly exceed the appropriation itself. We are able to affirm this fact owing to our scrutiny of inspection reports obtained under the Freedom of Information Act for the past six years. Year after year USDA's veterinary inspectors find large numbers of serious deficiencies in care and treatment of laboratory animals used in research funded by the federal government. It is they who insist that the registered research facilities meet minimum standards without which reliable scientific data cannot be collected. If our nation is serious in seeking health advances through the use of laboratory animals, we must insist upon appropriation of the $10 million necessary to ensure that the health of these animals is maintained. Otherwise, we endanger the billions of dollars of research funds appropriated in the hopes of finding cures for dread diseases. For the sake of suffering humans and animals alike, we strongly urge this distinguished subcommittee to appropriate the funds that more than one hundred organizations from both the research community and the animal welfare community have united in recommending. A copy of the joint letter is attached.

## LETTER FROM THE AMERICAN ACADEMY OF OTOLARYNGOLOGY HEAD AND NECK SURGERY, ET AL.

April 18, 1988

The Honorable Quentin N. Burdick
Chairman, Appropriations Subcommittee
on Agriculture, Rural Development and
Related Agencies
United States Senate
SD-140 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Chairman:

The U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS) program for enforcement of the Animal Welfare Act will suffer a $1.3 million reduction under the President's FY 1989 Budget, that is approximately a 20% decrease. Such a request is totally inconsistent with new and expanded responsibilities given to APHIS in the most recent amendments to the Act and with Congress' repeated action to preserve funding for this small but critical program. Only $4.9 million is proposed by the Administration for inspection efforts in the coming year. In FY 1985 and 1986, USDA reprogrammed funds to give APHIS approximately $6 million for animal welfare activities. Congress appropriated a similar amount for FY 1987 and the current year.

Your continued leadership in providing APHIS with the resources necessary to carry out its important animal welfare duties has been appreciated. Once again, the undersigned scientific and animal protection organizations must call upon you to ensure that adequate funds are made available for the consistent, high quality inspection program the public expects and Congress has already mandated.

In view of the recent Animal Welfare Act amendments attesting to the public's interest in the care and treatment of animals, the organizations listed below support an FY 1989 appropriation of $10 million for APHIS animal welfare activities. The recommended increase is required so that, as required by law, all covered facilities are regularly and carefully inspected, that inspectors are thoroughly trained, and that APHIS has the management and administrative support to carry out its new responsibilities.

Your consideration of this recommendation will be most appreciated. Please contact Christine Stevens, Society for Animal Protective Legislation (202-337-2332), or Frankie Trull, National Association for Biomedical Research (202-857-0540), should you or your staff have questions or require additional information. Thank you for all of your assistance.

Sincerely,

American Academy of Otolaryngology Head and Neck Surgery
American Association of Thoracic Surgery
American Association of Chairmen of Departments of Psychiatry
American Association of Directors of Psychiatric Residency Training
American College of Surgeons
American Diabetes Association
American Federation for Clinical Research
American Heart Association
American Humane Association
American Medical Association
American Neurological Association
American Pediatric Society
American Physiological Association

American Psychiatric Association
American Psychological Association
American Society of Hematology
American Society of Microbiology
American Society for the Prevention of Cruelty to Animals
American Veterinary Medical Association
Animal Allies Humane Society, Inc., MN
Animal Care and Welfare/SPCA, PA
Animal Protection Institute
Animal Protective League, WI
Animal Rescue League of New Hampshire
Animal Welfare League, WI
Animal Welfare League of Arlington Co., VA
Animal Welfare League of Montgomery Co., IN
Arkansas Humane Society
Association for Academic Psychiatry
Association for Academic Surgery
Association of Academic Departments of Otolaryngology
Association of American Medical Colleges
Association of American Universities
Association of Medical School Departments of Biochemistry
Association of Medical School Pediatric Department Chairmen
Association of Orthopedic Chairmen
Association of Professors of Medicine
Association of University Anesthetists
Association of University Professors of Opthalmology
Association of University Radiologists
Bellingham Whatcom County Humane Society, WA
Black Hawk Humane Society, IA
Bolling Green/Warren Co. Humane Society, KY
Broome County Humane Society, NY
Capital Humane Society, NE
Chautauqua County Humane Society, NY
Citizen's Animal Society, UT
Citizens for Animal Welfare Education, MI
Corinth Alcorn Humane Society, MS
Cosmetic, Toiletry & Fragrance Association
Dana-Farber Cancer Institute, MA
Delaware Humane Association
Deming-Luna Co. Humane Society, NM
Denver Dumb Friends League
Elkhart County Humane Society, IN
Federation of American Societies for Experimental Biology
Florida Federation of Humane Societies
Fund for Animals
Greater Anoka County Humane Society, MN
Halifax Humane Society of Volusia County, FL
Hawaiian Humane Society
Helen Woodward Animal Center, CA
Help Save the Animals/Wasatch Humane, UT
The Humane Society, Inc., ND
Humane Society of Central Oregon
Humane Society of Grand Forks, ND
Humane Society of Huron Valley, MI
Humane Society of Midland County, MI
Humane Society of Rochester and Monroe Counties, Inc., NY
Humane Society of Saginaw County, MI
Humane Society of Tampa Bay, FL
Humane Society of the United States
Humane Society Shelter, MN
Iowa Federation of Humane Societies
Juvenile Diabetes Foundation
Linn County Humane Society, IA
Logan County Humane Society, KY
Massachusetts Society for the Prevention of Cruelty to Animals
Michigan Humane Society

Mississippi Animal Rescue League
Nashville Humane Society, TN
National Alliance for Animals
National Association for Biomedical Research
National Assoc. of State Universities and Land Grant Colleges
Newton Animal Rescue League, IA
Panhandle Humane Society, TX
Pharmaceutical Manufacturers Association
Progressive Animal Welfare Society, WA
Pulaski County Humane Society, AR
Quincy Humane Society, IL
Rochester Animal Control, NY
Sacramento Society for the Prevention of Cruelty to Animals, CA
Society for Animal Protective Legislation
Society for Neuroscience
Society for Pediatric Research
Society of Academic Anesthesia Chairmen, Inc.
Society of Critical Care Medicine
Society of University Otolaryngologists
Souris Valley Humane Society, ND
Sullivan Co. Society for the Prevention of Cruelty to Animals, NY
Surgical Infection Society
The Endocrine Society
Tippecanoe County Humane Society, IN
University Association for Emergency Medicine
Washington Humane Society, DC
Western Pennsylvania Humane Society
Wisconsin Humane Society

## RODALE INSTITUTE

### STATEMENT OF ROBERT RODALE, CHIEF EXECUTIVE OFFICER, RODALE PRESS

### ACCOMPANIED BY LUTHER BERNTSON, ADAMS, ND

Senator **BURDICK**. Our next witness will be Robert Rodale, chief executive officer and Luther Berntson, Adams, ND, Rodale Press.

This must be North Dakota Day.

Mr. **RODALE**. That is right.

Senator **BURDICK**. This is the second or third representation we have had from North Dakota. It is one of the best hearings we have had. [Laughter.]

Senator **BURDICK**. You may proceed as you wish.

Mr. **RODALE**. Thank you. My name is Robert Rodale. I am chairman of the board of Rodale Press and the Rodale Institute. I am here to talk about the appropriation for low-input agriculture.

First of all, I want to say how thankful, I want to express the thanks of the researchers and the farmers involved for the last year's appropriation of $3.9 million, which is already beginning to produce results. I have been in touch with many farmers, researchers, Extension officials, private and nonprofit research institutions which have begun working with the CSRS on the use of this money, and it has been a very useful and, I think, productive beginning to the program that we have been advocating for many years.

We have had many good proposals submitted. There is now tremendous interest in the research community in low-input agriculture, sustainable and regenerative agriculture, and we have many more projects being submitted and evaluated than can be accommodated with this $3.9 million amount.

To me, one of the most important things is that the existence of this program has shown that there is a tremendous need for this kind of work and even a much larger need than we thought. For so many years, the idea was not considered to be part of the mainstream of American agriculture, very significant. But now it has really achieved more visibility.

We are just seeing a tremendous switch in the orientation of scientists and the interest of farmers. We are being inundated with requests and proposals under this program. The most exciting thing about it is the reaction of the farmers. This kind of research is done very closely with farmers, much of it on farms, and it is a much closer relationship between the farmer and the research institution than existed before, because it is a low-input idea, and the input suppliers are not kind of standing between the research and the application of it. So that the mind of the farmer and the strategies of the farmer are a much more significant part of this program.

These are farmers from all over the country. From the farmers we have identified, five principal areas, the farmers tell us that these are the ones that are the major problems and the major opportunities. One is weed control. The other is crop rotations and nonchemical soil fertility maintenance. The farmers ask for development of seed varieties that are more in tune with sustainable management. Many of the existing seed varieties are developed to use a lot of fertilizer and to respond to pesticides, not so much to respond to a regenerative type of soil environment.

Farmers also ask for the development and effectiveness testing of naturally derived products for animal and crop production and also, the fifth item is a great request for effective legume and cover crop systems. In this country, we are not using legumes for nitrogen fixation nearly as much as we could.

I have submitted written testimony which has a lot more information. I just want to conclude by pointing out that there is really no quick fix in this kind of enterprise. It is not something where you can make an invention and pass it out and then the problem is solved. It requires a much more intensive and close cooperation and continual work with farmers than a quick fix approach.

We have had very great cooperation in North Dakota. North Dakota State has shown a tremendous interest in this idea, I think a closer working relationship with the Rodale Research Center and the Rodale Institute than any other experiment station or university.

I just want to conclude by saying that we really need at least $15 million for next year, and that is actually a compromise amount, because water pollution and productivity questions are so great that we could use a lot more. But I think we could do with that much. Thank you.

Senator **Burdick**. Mr. Berntson?

Mr. **Berntson**. Mr. Chairman, my name is Luther Berntson. I am a farmer from Adams, ND, and I want to thank you for this opportunity to be here, and I also want to underscore what Mr. Rodale has said.

We had the opportunity to visit the Rodale farm at Emmaus about a month ago, and it is kind of like you have been to the mountain. What we saw there was very enlightening, realizing that they were out there when nobody else was—working on regenerative and the sustainable agriculture.

I guess I, as a farmer, and probably at times we have been kind of down, I am more excited about farming today than I have ever been. I think that some of the things that we see coming in farming, that the most exciting times are ahead of us. As we look at some of the new technology and the things that we can adapt to make a low-cost input and a sustainable agriculture, I think are very important. To me, this is one of the most exciting things that we can be about.

I know a couple of weeks ago, when you were back in North Dakota, those dust clouds, or those clouds that came across on Sunday morning were not rain clouds, sorry to say, but they were dust clouds. I think that as we have been using, probably misusing, some of our modern technology, that we are headed on a collision course, a collision course with our environment and also a collision course with profitability.

I think too often, we, as farmers, have farmed with our pocketbook and not with our head. So I am excited about this, and I think that, as Mr. Rodale mentioned, there is a great interest amongst the farmers. I think that this research is user driven. I think that that is also very important. I think it is important that we have this low-cost research that we can maintain our competitive advantage that we might have; that we can sustain our environment; and I think that also, as an exporting nation of food and fiber, that we can maintain a competitive edge in our export markets.

The markets are going to be not amongst people who can buy $10 wheat, but low-cost. I think we have a moral obligation to find ways to produce food cheaply but also, at the same time, at a profitable level.

I don't think that we forsake everything that we did in the past but that we have a blending of the old and of the new, that we use modern technology, and yet we have time-honored farming practices that our native Americans used that I think we can adapt in a modern technology.

We have many things in the biotech fields that are coming along. For example, the need for varieties that are more efficient in the use of water and in nutrients. What this would mean to—for example, western North Dakota, if we could find a wheat that would produce two or three more bushels per inch of moisture—it would be significant.

I think we have the blending of some basic research, but we also need the adaptive research to find out how to use it on the farm.

I guess that this comes down to: Who pays the bill? Is it the role of the farmer to pay this? We, perhaps, should pay some of it. I don't know. But I think it is the role of the public to provide public funding, because as a producer, we have very little means to pass on the cost of added research.

Also, soil is a public resource, and a stable food supply is in the best interest of all society. So I feel that public funding has a great role to play in low-input agriculture and sustainable agriculture.

I think that we have in place our land grant systems, and we have private research institutes that are in place that can do this adaptive research that is needed for on-the-farm use. As Mr. Rodale mentioned, the $15 million, while it seems like a very large sum to me, it is not large in terms of the need for a sustainable and low-input agriculture. The requests are for much more, and so really, the requests are quite modest.

I think with that, Mr. Chairman, we want to thank you for the support that you have given in the past and for the appropriation of this last fiscal year that we are in now, and I have written testimony that I submitted.

I also have some testimony that is submitted by Don Howe from Hettinger; John Gardner from the Carington Station; Dr. Lund, Peter Nygaard, and by Bob Nowatzki. If you have any further questions I would be happy to try to address them.

Again, thank you for your time and for your support.

Senator BURDICK. The statements you refer to have been made a part of the record. Do you have copies of them?

Mr. BERNTSON. Yes.

Senator BURDICK. Fine. How many of the new farmers are up there in the northeast corner? They switched from the old to the new. How many new farmers have you got who are following these new methods?

Mr. BERNTSON. Well, I think a lot of it is coming just into place, and I think that because of the economic squeeze that most of them are trying to squeeze as many dollars out of the land that they have got. They are really not in a position to try something that isn't proven. They can't really stand to have a failure, afford to have a failure. So this is why I guess we feel that the research is needed, so that it is proven before they can turn their whole farm into research.

Senator BURDICK. In other words, they want some proof, 100 percent proof, before they make these commitments, the vital decision?

Mr. BERNTSON. That is right.

Mr. RODALE. But there really are thousands and thousands of farmers in the United States doing this, and it is a stepwise process, where what we advocate is that they try a small part of their field and watch it and then expand it. I think the major thrust of this research is to figure ways for farmers to take steps into low-input without a great deal of risk.

Mr. BERNTSON. I think that also points out the value, perhaps, that the amount of equipment and the amount of land that is put into this research effort for really, very low dollars because of the cooperative effort with the farmer and the research scientist.

Senator BURDICK. Several witnesses in our hearings on the 1989 budget have suggested that water quality and management should be a key priority for research. Do you think low-input research projects might also yield information on how to prevent groundwater contamination and improve water quality?

Mr. RODALE. Yes. Definitely. That is one of the major parts of this whole program. In fact, in some parts of the country, we are making observations that are directly tied in with bodies of water, where we are measuring the runoff of fertilizers and pesticides and finding how that affects the pollution of certain bays, estuaries and rivers and also ground water supplies. So that is definitely a major benefit of this research.

Senator **BURDICK**. Thank you both, gentlemen, for your contribution this morning.

Mr. **BERNTSON**. Thank you.

Mr. **RODALE**. Thank you.

[The statements follow:]

## STATEMENT OF ROBERT RODALE

I am Robert Rodale, Chairman of the Board of Rodale Press, and President of The Rodale Institute. I wish to begin by personally thanking you, Senator Burdick, and members of the Sub-Committee for your assistance in initiating the low-input agriculture program as part of the current budget. The $3.9 million that was appropriated to the Cooperative State Research Service for FY88 will be put to good use.

As you know, the $3.9 million is being apportioned equally on a regional basis throughout the country. I've been in touch with researchers, farmers, extension officials, and private and non-profit research institutions in all four regions. Quite frankly, I am impressed with the quality and comprehensiveness of the low-input proposals being developed. All address the need for farmer-ready information, are interdisciplinary, multi-state, and include a cooperative relationship between farmers, extension, land grant universities, and private and non-profit institutions. In addition, I've learned that the proposals address the need to preserve our natural resource base by including technologies designed to prevent soil erosion and groundwater pollution.

However, in my discussions with these researchers and producers, I've also learned that many good proposals will go unfunded. Therefore, for FY89 we are asking for your continued support in the amount of $15 million for low-input agriculture, with these monies to be again dispersed through the Cooperative State Research Service.

Although productivity is the key word in the Agricultural Productivity Act, America, today, is being forced to deal with the consequences of a farm productivity crisis. Those consequences include: overproduction, particularly of feed grains; excessive soil erosion and silting of waterways; pollution of groundwater with fertilizer and pesticide residues; reduction in employment opportunities in farming; and a frightening deterioration in the entire financial structure of agriculture.

The result is that both farmers and consumers are beginning to fear American agriculture, rather than see it as a source of national strength. Non-farmers now fear the tax burden that support of the present system places on their shoulders. They fear, also, the draining away of national strength that soil erosion and pollution symbolize.

Farmers, above all, fear that the way of life they love will collapse around them, forcing them off the land. Farmers lack the option of switching easily -- either permanently or temporarily -- to a farming system which works well with very low levels of inputs, yet which still would provide reasonable levels of production permanently, while reducing soil erosion and groundwater problems.

Think for a moment about how today's farmer is locked into an energy- and chemical-intensive production system. For the past two decades, energy was unrealistically cheap and farmers came to rely almost exclusively on purchased nitrogen fertilizer and herbicides. Now, many farmers are finding they can no longer afford those chemicals, either financially or environmentally.

Soluble nitrogen fertilizers and chemical herbicides are showing up in drinking water wells on more and more farms and even in cities around the country. Yet the crop nutrients and weed control that farmers need are already to be found in non-polluting forms in the "free" internal resources of farms throughout the United States. The air is loaded with nitrogen, which can be captured in the soil through use of legumes, weed-controlling crop rotations and overseeding, which increasing numbers of farmers are incorporating into their farming systems.

I call farmers who are making better use of their internal resources "regenerative" farmers, because they are actually improving our resource base while using it. They are producing good crops, while spending less -- and making more. True to the regenerative philosophy, most regenerative farmers do more than just use their internal resources more intensively. They use them in ways that actually strengthen and purify those resources.

How? In scientific terms, by taking full advantage of the efficiencies of what agronomists call "biological structuring." Briefly, that structuring totally integrates a wide variety of sophisticated production methods. It minimizes the need for usually purchased external inputs, while maximizing the use of free internal resources. The chart following this letter (Appendix A) compares the major internal resources of a regenerative agriculture system with conventional farming based largely on external inputs.

A classic example of biological structuring is what scientists call "nutrient cycling," a closed system within a system which keeps a high level of native crop nutrients on the farm. While nutrient cycling is most commonly associated with composting and otherwise recycling crop residues or animal manure, it can take vastly different forms. Picture this:

A farmer growing a legume crop like red clover harvests the clover seed. By simply overseeding the legume into a standing crop like corn, the farmer greatly reduces or even eliminates the need for purchased nitrogen fertilizer for next year's crop. That's because the legume, in partnership with free-living, nitrogen-fixing organisms in the soil, captures nitrogen from the air and makes it available to crops in generous amounts. But the benefits of overseeding don't stop there. By cutting fertilizer use, it reduces the amount of chemicals being discharged into the environment and lessens the likelihood of groundwater pollution. It also:

- Significantly reduces soil erosion by keeping the ground covered.

- Conserves soil moisture, reducing the need for irrigation and reducing the threat of drought.

- Pumps phosphorus, potassium and secondary nutrients up from lower soil layers, again reducing the need for purchased fertilizers.

- Helps choke out weeds, which, in turn, reduces the need for chemical herbicides and decreases the potential for environmental pollution.

- Increases soil organic matter levels, when mowed or plowed down as a green manure. This improves soil structure. Rainfall soaks into the soil, rather than running off and carrying precious topsoil, nutrients and chemicals with it.

- Disrupts insect cycles -- reducing both the need for insecticides and the risk of pollution caused by crop chemicals -- when used as one of a variety of crops in a crop rotation.

- Provides grazing for livestock, which convert grain and fodder into meat, milk, eggs and other value-added products.

- Cuts the farmer's production costs and boosts net income. This helps keep the farm in business, stimulating economic activity throughout the local community.

Regeneration is proving workable -- and profitable, for man and the environment -- on more and more farms throughout the United States and the world. The ambitious idea of regenerative agriculture has now made the transition from being merely a thought to actually being a practical system enjoying increasing use. That system is providing workable, lasting solutions to challenges such as preserving and regenerating our soil, halting environmental degradation, reducing the need for government subsidies and lowering farmers' production costs, while maintaining productivity and increasing profitability.

For many years, though, about the only source of practical information on low-input farming systems came from our 305-acre Rodale Research Center in Maxatawny, PA, our various books and magazines like The New Farm, and a handful of truly innovative university researchers and Extension agents responding to the most pressing needs of farmers.

More recently, the Rodale Research Center and The Rodale Institute have entered into collaborative projects with USDA's Agriculture Research Service and a growing number of land grant universities. Just this past March, North Dakota State University researchers -- Dr. Don Anderson, Assoc. Dean and Director; Dr. Earl Foster, Chair - Agronomy; Dr. John Gardner, Extension; Dr. Jim Struble, Microbiology; and Dr. Dave Watt, Professor - Agricultural Economics -- and North Dakota farmers -- Don Howe and Luther Berntson -- met with the staff of the Rodale Research Center to develop a cooperative program on low-input agriculture. Dean H. Roald Lund visited the Center earlier in the year to help pave the way for this meeting.

A working group consisting of North Dakota representatives and Bob Hart and Rhonda Janke of the Rodale Research Center will be meeting on June 3rd in Chicago to formalize a cooperative agreement and research agenda between the two institutions. The group will be looking at a scientist exchange program, putting North Dakota graduate students at the Rodale Research Center, and doing some cooperative field trial work at both institutions and on North Dakota farms. We are excited about the possibilities of this collaborative effort.

In addition, this past January the Rodale Research Center co-sponsored with National Extension a workshop for extension agents and specialists at the Rodale Research Center. More than 40 extension officials from 20 different states attended. The workshop was designed as a pilot initiative to test the concept of developing a training program in low-input technologies for extension personnel.

One of our first cooperative initiatives involved The Rodale Institute's co-sponsorship of a conference on low-input farming systems at the Johnson Foundation's Wingspread Conference Center in Racine, WI. The conference brought together administrators from 14 land grant universities, state experiment stations and USDA for two days to begin planning a regionally developed, national agenda for needed new research. Much of that research agenda will soon begin to be implemented as a result of last year's $3.9 million appropriation for low-input agriculture.

In addition, The Rodale Institute has established a network of 17 on-farm research and demonstration sites that represent a wide geographical mix and a variety of farming enterprises in Ohio, Minnesota, Michigan, Missouri, Illinois, Wisconsin, Iowa, Indiana, Maryland, Pennsylvania and Nebraska. These are working farms where area farmers can come to see demonstrations of various components of low-input farming systems in the field, and exchange information and ideas with fellow farmers, Extension agents, soil and water conservationists and area agricultural scientists.

Our on-farm cooperators were largely selected from the more than 2,500 low-input farmers surveyed by The New Farm. The vast majority of those farmers report they are making just as much -- and often more money -- since they began reducing the use of purchased inputs and relying more on the internal resources of their own farms. In many cases, they say this change in farming practices has saved them from going out of business. About the only regret they have is that they did not adopt low-input farming methods years earlier.

Farmers tell us it is not at all uncommon for them to save $25 to $30 or more per acre on fertilizer, alone. Equal savings are reported on herbicides. While input costs are reduced dramatically, their crop yields remain about the same or actually improve, depending largely on the weather. One of the best examples of this is the 300-acre farm of Richard and Sharon Thompson, near Boone, IA. Ridge-tilling corn and soybeans in rotation with oats, hay and pasture has allowed the Thompsons to completely eliminate herbicides from their farm. They consistently produce good yields of corn for about $95 less per acre, and soybeans for about $45 less per acre than the Iowa State University production averages.

One thing holding back many farmers who want to reduce their input use is the serious lack of region-specific scientific information on how to successfully make such changes. In January and February of this year, The Rodale Institute held a series of workshops on low-input farming systems at Sioux Falls, South Dakota; Richmond, Indiana; and St. Joseph, Missouri. More than 250 farmers attended. Their recommendations for priorities to our agricultural administrators and researchers over the next five to ten years included researching production systems that do not require heavy chemical use, biological weed and insect control, breeding or selection of plants and animals that function well in low-input systems, new marketing and grading systems based on nutritional quality that would command higher prices for farmers, improved delivery of information on low-input farming systems, and greater farmer involvement in the research process. Much of what these farmers asked for, especially greater farmer involvement in the research process, is becoming a reality. Why? Because the guidelines for research and extension under the $3.9 million appropriated last year specifically call for these actions and research coverage. We see farmer involvement as a key element in the agriculture research and extension of the future.

During the 1980's as production costs continued to rise and commodity prices steadily fell, the land grant universities cautiously began responding to farmers' needs by initiating new research. These studies are variously aimed at reducing the use of fertilizer, herbicides and other purchased inputs, safeguarding the environment and improving the profitability of our farms. Eighteen land grant colleges now have new research projects in the low-input area. They are studying important areas like the role of legumes in rotations, biological weed control, nitrate carryover and fertilizer management.

The University of Vermont even has a new, inter-disciplinary agricultural curriculum that leads to a bachelor of science degree in sustainable agriculture. Other universities are conducting or proposing new research in this area. A partial list would include:

North Dakota State
Iowa State University
Michigan State University
North Carolina State University
Penn State University
Ohio State
Washington State
University of Maryland
University of Nebraska
University of Kentucky
University of California
University of Wisconsin
University Maine
University of New Hampshire
University of Arkansas
Cornell University
Kansas State
University of Missouri
University of Georgia
Ft Valley State College
University of Arkansas - Pine Bluff
Purdue University
University of Minnesota
South Dakota State

As commendable as the research programs may be, scientists at the different universities admit that these efforts are barely scratching the surface of the new discoveries that await us. Fortunately, they and many other scientists at land grant and non-land agricultural institutions and state experiment stations are poised to move much further in this new direction. That's exactly what they are begining to do now that low-input funds are becoming available.

The catalysts for this emerging new paradigm for our agricultural sciences include the farmer, the continued economic depression in U.S.

agriculture, growing concern among farmers and non-farmers over groundwater pollution from agricultural chemicals, and the record costs of our federal farm programs.

Significantly reducing farmers' production costs is crucial to surviving in agriculture during the rest of the century. That is why I support the Agricultural Productivity Act and urge you to continue to appropriate all the funds necessary to implement its provisions for new research on low-input agricultural systems.

I am convinced that this vital new research and its extension will soon begin restoring profitability to farms throughout the United States, and lessen the financial burden on the federal government. At the same time, it will help safeguard our groundwater and other natural resources, and contribute significantly toward better health and safety for both farmers and non-farmers. Unlike some past efforts, the Agricultural Productivity Act calls for a regional approach to research, and truly democratic and regional organization and budgeting. Primary emphasis in implementation would come from area scientists and farmers, forming a new partnership between land grant and non-land grant universities, state experiment stations, Extension and the private sector.

As the name of the Agricultural Productivity Act implies, this is a partnership that will be truly productive -- and profitable -- for all concerned. I urge your continued support in the amount of $15 million for this Act.

## APPENDIX A

### RESOURCE SYSTEMS FOR AGRICULTURAL PRODUCTION

| INTERNAL | EXTERNAL |
|---|---|
| SOIL | HYDROPONIC MEDIUM |
| SUN - main source of energy | SUN - energy used as "catalyst" for conversion of fossil energy |
| WATER - mainly rain and small irrigation schemes. | WATER - increased use of large dams and centralized water distribution systems. |
| NITROGEN - collected from air and recycled | NITROGEN - primarily from synthetic fertilizer |
| MINERALS - released from soil reserves and recycled | MINERALS - mined, processed, and imported |
| WEED & PEST CONTROL - biological & mechanical | WEED & PEST CONTROL - with pesticides |
| ENERGY - some generated and collected on farm | ENERGY - dependence on fossil fuel |
| SEED - some produced on-farm | SEED - all purchased |
| MANAGEMENT DECISIONS - by farmer and community | MANAGEMENT DECISIONS - some provided by suppliers of inputs |
| ANIMALS - produced synergistically on farm | ANIMALS - feed lot production at separate location |
| CROPPING SYSTEM - rotations and diversity enhance value of all of above components | CROPPING SYSTEM - monocropping |
| VARIETIES OF PLANTS - thrive with lower moisture and fertility | VARIETIES OF PLANTS - need high input levels to thrive |
| LABOR - most work done by the family living on the farm | LABOR - most work done by hired labor |
| CAPITAL - initial source is family and community; any accumulation of wealth is reinvested locally | CAPITAL - initial source is external indebtedness or equity, and any accumulation flows mainly to outside investments |

## STATEMENT OF ROBERT E. NOWATZKI

The agricultural industry in the United States is a dynamic ever-changing industry and can be characterized as such since the very early days of our country. The dynamic nature of the industry forged by the eagerness to adapt new technologies on the part of our farm producers is to a large extent responsible for the unparalleled success of our agricultural production sector in the production of food and fiber. This success has been nutured by a strong committment in agricultural research via our unique land-grant system, and by a rich supply and niche of natural resources --- the combined availability of soil, climate and management factors existing in the heartland of rural America that allows the on-going miracle of production to continue.

And yet because of our huge potential to produce we often take our wealth of resources for granted, even to the extent that public policy in my lifetime more often than not seems bent on throttling back and restraining total output while at the same time forcing individual farmers in a "catch 22" situation of extracting the most possible out of individual farm units for economic survival. This has led to conflicting application of public policy, to forcing individual farmers into high risk and highly capitalized high input dependent production with declining attention to basic long-term stewardship.

### CONFLICTS IN PUBLIC POLICY:

Back in the 1930's when President Franklin Roosevelt signed into law the act creating the Soil Conservation Service, he publically proclaimed our soil as a "public resource", and thus justified public funding and support to protect and sustain our soil resource. Public policy has also maintained a strong committment towards encouraging a stable supply of wholesome and nutritious food for all of our people as well as for export. Therefore, it now **does not** seem unreasonable to expect public investment to sustain our agricultural production base through public research and demonstrations aimed at long-term goals of cost and risk reduction for individual producers while at the same time preserving, sustaininig, and improving our valuable soil resource base.

**Because of pressures for individual farmer economic survival and because of conflicting signals from regulations of public policy, one can easily detect and surmize conflicts that appear to threaten much of the success we have achieved in conservation ethic of the past fifty years.**

During the 1970's, individual farmers were rewarded with increased crop acreage bases if they broke out and placed into production even their most marginal lands. The incentive was to receive additional acreages of program crops translated into increased subsidy payments encouraging increased land values. Then in the 1985 Food Security Act, those same farmers were paid to place many of those same marginal acres into long-term land retirement through the CRP program. The controversial Swampbuster program threatens farmers for non-compliance while ingoring the basic fact that farmers totally dependent on their soil resource are in fact the stewards of that resource.

Farmers that have voluntarily developed sound conservation practices on their farms, such as conservation tillage, now find their farms ineligible for participation in the Conservation Reserve Program while tenant neighbors who have ignored basic stewardship practices are again being rewarded with cash payments. Public policy needs to be reversed in that sound stewardship practices **should be rewarded.** Individual farm conservation plans should again be developed with incentives provided to implement those practices.

## NEED FOR RISK REDUCTIONS:

In recent years agriculture and rural communities have experienced depressed economics with an increased out-migration of people, and an increased demand for public services proving more difficult for state and local government to sustain. The social infrastructure of rural America is in disarray.

Agriculture today is in critical need of risk reduction and reduced cost inputs to sustain industry income at a time when reduced dependence on government payments because of scarce tax dollars is obvious. A very strong case can and should be made for public investment in "Adaptable Research" to reapply many of the basic aspects of sustainable agriculture aimed at maximum long-term production with least-cost inputs. The role of farm diversification and alternative specialty crops with more attention to long term complimentory rotations needs to be re-examined. We have the tools to achieve this type of applied research if funding is adequately provided our land-grant system already in place in rural America.

Robert Nowatzki is a North Dakota State Representative, Langdon, ND. He is also a farmer and former superintendent of Langdon Agricultural Experiment Station from 1960 to 1981. He operates his own agricultural consulting service.

## LETTER FROM DON HOWE

Hettinger, North Dakota
April 22, 1988

Honorable Senator Burdick
Senate Agriculture Appropriation Sub Committee on
Rural Development and Related Agencies

Honorable Senator Burdick,

I am a farmer and livestock producer and very concerned about soil contamination and water pollution.

As a farmer I need to use fertilizer to get the maximum efficient yield. I use chemicals to control weeds and harmful insects.

The water in this area has tested free of harmful chemicals and I would like to keep it that way.

I would appreciate research that would define what amount of chemicals cause soil contamination and water pollution under our different soil, temperature and moisture conditions.

It is my sincere hope that you will support legislation that will keep our state free from harmful chemicals.

Sincerely,

Don Howe
RR 2 Box 911
Hettinger,North Dakota

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## LETTER FROM PETER A. NYGAARD

April 25, 1988

Senator Quentin Burdick
Chairman Senate Agriculture Appropriations Subcommittee
on Rural Development and Related Agencies
Hart Senate Office Building 511
Washington, D.C. 20510

RE: Low Input Costs and Sustainable Agriculture

Senator Burdick:

I live and farm in Western North Dakota. I am in a low rainfall area, about 13 inches annually, with marginal soils and a slightly rolling terrain. Because of the low and unpredictable rainfall this area is a high risk area for agricultural production consequently we need to keep our input costs as low as possible. In order for farmers like myself to compete in our world based economy we must begin to use our technological edge to our advantage and become least cost producers. Our labor and land costs are high relative to the rest of the world but through technology we gain our advantage and are able to compete with the rest of the world. Low input and sustainable agriculture I believe are key to our future survival in this world based economy.

The early Agrarian Indian Societies practiced an integrated system of crop production. Crops were rotated, with many different types of crops grown within their plots livestock if available were also incorporated within their overall plan, today this could be termed sustainable agriculture. Early on these people understood stewardship and the complex relationship between plants and the soil and animals and plants.

We as farmers need to begin to practice stewardship and pay closer attention to rotations. In Western North Dakota where moisture is a limiting factor we must begin to change our farming methods in order to continue to survive. Our present crop fallow system is a very inefficient use of our land and has proven to be a big contributor to erosion. In one or two generations our natural fertility and soil structure has disappeared. How could early societies use the same land for generations and yet maintain crop productivity?

As stated earlier the key for survivability in high risk areas I feel is low input and sustainable agriculture. Research is needed in all areas of low input and sustainable agriculture. We currently have available the finest agricultural research in the world but it is geared toward maximum production with high inputs for low risk areas. In order to insure survivability in the high risk areas we must begin to fund research into low input agriculture. Low input agriculture will lead us away from our chemical dependency in agriculture and produce a healthier product and a cleaner environment.

What better way to promote rural economic development than to return more money to each of our farmers? Research into low input and sustainable agriculture can and will lead the way toward profitability. In Western North Dakota why do we sell all of our calves to out of state feedlots, why not graze cows on grain stubble after harvest and feed the calves cheap farm raised feed grains? Value added equals economic development. Can we develop a perennial wheat, is there ,an optimum rotation for low rainfall areas, one that utilizes our land base every year and yet requires only minimal amounts of chemicals and fertilizers? These questions and hundreds more can only be answered by funding research into low input agriculture. Think of all the possibilities, more profitability. greater economic development, greater rural economic health, and less federal farm program outlays.

Thank you for taking the time to consider this important matter.

Sincerely,

Peter A. Nygaard

Peter A. Nygaard

## LETTER FROM LUTHER BERNTSON

**The Honorable Quentin N. Burdick**
**Chairman**
**Agriculture, Rural Development, and**
**Related Agencies**
Sub-Committee of the Appropriations
Committee
140 Dirksen Senate Office Building
Washington, DC 20510

Dear Senator Burdick:

My name is Luther Berntson, I am a farmer from Adams, North Dakota (located in the north-eastern part of the state). I live on and farm my grandfather's land, which was homesteaded in 1882. Our total farm now encompasses about 2000 acres of crop land. Located on a glacial-till plain, the land's topography, climate and rainfall are quite typical of a large portion of North Dakota. Our main crops are spring wheat, durum wheat, barley, sunflowers, rapeseed and flax.

In my lifetime I have witnessed the transition from horse-drawn equipment to power-driven machines. As farmers we pride ourself on our productive capacities and quiet adoption of new technology. This has not come without a cost. As modern technology has increased so has our reliance on pesticides and chemical fertilizers. This has not made for better farming or soil conservation practices. This is very evident in North Dakota this spring as the dust clouds roll across our prairies. Some may say this is an "act of God" but I submit that it is an "act of man" and his farming techniques.

Those of us in production agriculture are aware of the high price of modern technology. We have to often farmed with our checkbook and not with our head. While the farm sector has borne the cost of modern technology, eventually all society will have to pay. We need to ask, what is the cost of a depleted soil resource? What is cost if ground water is contaminated? What are the health costs from unwise and misused pesticides? What is the cost of not having a stable food supply because of restrictions and regulations in the use of pesticides and commercial fertilizer? The list goes on...

Does this mean that we must forsake modern technology and go back to the farming methods that my grandfather used? I don't believe we have to. I believe we can have a blending of the old and the new. There are time-honored farming systems that date back to the Native Americans that we can use. There are also modern technologies that we can use that won't damage our environment or our pocketbooks.

This however, calls for an increased research initiative into low input for commercial agriculture production to meet the growing needs of the world for food and fiber.

As a farmer I want to thank you, Mr. Chairman and members of the committee for the start that has been made in this area of low input and sustainable agriculture. The $ 3.9 million appropriation by this committee for this fiscal year is a good beginning and a step in the right direction.

On my own farm we have adopted a no-till cropping system. This system serves very well in the control of water and wind erosion. Yet there are many unanswered questions. Such as, how do I move out of a mono-culture and still remain competitive? What are some of the alternative crops that I can grow? What is the market for these alternative crops? In a moisture defined area, how do I insert a legume into my cropping system? What are some of the ways that I can better manage my soil to increase and enhance the biological life in the soil? What effect does a nutrient-balanced soil have on the health of the plant and its ability to resist diseases and insects? What insects are beneficial? Are there crops I could be growing that have allopathic affect on the weed species? How can I increase the organic matter in the soil? What are the best land uses? These are but a few of the questions that the farmers of my state and my nation have about low input and sustainable agriculture.

I firmly believe that some of the answers will come from basic research in the bio-tech fields and genetic improvements. Biological control methods that identify the plant's tolerance to insect and disease are perhaps some of the most economical or low cost approaches for the producer, as well as being the most desirable course for the environment.

The need is there for plants that will thrive in a new environment, like those we have in conservation farming. Our research needs are for plants that are more efficient and more drought tolerant. For example can we develop wheat that yields 40 bushel per acre with 20 lb of nitrogen instead of 100 lb? Can this same wheat produce two or three bushels more per inch of water? How about perennial cereal grains? These are but a few of the basic research needs. The answer in my estimation will not come from any one research effort. It will come both from basic and applied research in a systematic, cross-discipline approach.

Low input will require a higher level of management skills. As we move into the next decade the producer will have to be better trained, and have a better understanding of the whole ecology. The farmer will have to possess these skills in order to compete and maintain a viable farming unit. It will require a cooperative effort by research and extension services to move their technology to the user in an efficient and effective manner.

There is an underlying issue in the need for research in low input for agriculture production. That issue is economic survival. We must find ways to maintain our competitive advantage and restore profitability for rural America.

This brings up the question, who pays the bill? Is it the function of production agriculture or is it the function of publicly funded research. It is perhaps the function of both. However, the producer has very limited means to pass on the cost of research to the consumer. This is coupled with the consumer's resistance to higher food cost and public policy that has enabled cheap food. This points to the need for publicly funded research. The benefits are not for the producer alone, but for all society.

I thank you for your consideration and the opportunity to present this testimony to your committee. If you have any questions please feel free to contact me.

Let me assure you again, that the needs are real for increased funding in this area. Low input and sustainable agriculture are a legacy that we need to pass on to the next generation, to meet the needs of our society now and in the years to come.

Thank you!

Luther Berntson
RR2 Box 27A
Adams, ND 58210

## STATEMENT OF H. ROALD LUND, DIRECTOR, NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

**I am H. Roald Lund, Director of the North Dakota Agricultural Experiment Station with headquarters at North Dakota State University, Fargo, North Dakota.**

North Dakota is said to be the most agricultural state in the nation with over 27 million acres of land in cultivation and 12 million acres in rangeland. Due to the short growing season and limited rainfall the farmers and ranchers have a very limited return on investment. They cannot "bet the farm or ranch" each year and stay in business.

Our research program has always been targeted on "efficient" production and as you committee members know, this approach has wide interpretations and widely divergent outcomes. It has become obvious that we need to return to some of the elements present in the pre-chemical revolution in farming. The quick fix of the past of power replacement by low cost energy, high and effective use of fungicides, herbicides, fertilizers, and other farming inputs simply does not lead to a sustainable agriculture in a world market.

The North Dakota station is turning to new technology to solve old problems. For example, the new inter-active computer programs provide model building to propose and evaluate "what if" questions regarding land and input alternatives. We are adjusting production models to insure a "profit" on the first bushel. The widespread interest in and participation in MEY (maximum economic yield) Clubs throughout the state provides evidence of farmer support for better sustainable ways to farm.

Another exciting area of investigation is to use computer-assisted programing of soil type, soil fertilizer analysis in a field scale planting pattern. Single pass drills, that have variable fertility and seed monitoring devices, accurately place the exact amount of fertilizer and seed at variable rate(s) in a field. This technique will maximize the ability of the soil to provide an economical return. The system uses a radar scanner of the soil surface, a predetermined planting pattern and memory in the computer regarding the above variables to provide the basis for a modern sustainable agriculture system. We have a project now in its second year to evaluate this high tech system.

The North Dakota Agricultural Experiment Station is currently developing an extensive effort to evaluate the potential to incorporate self-propagating annual legumes into a farming/ranching system to reduce purchased inputs of nitrogen. The potential of annually recharging the soil with nitrogen from natural sources without the traditional sweet clover/fallow regime of past years has great appeal to modern cash crop farmers and ranchers anxious to fertilize their ranges without purchased nitrogen. Several annual legumes have potential and will be evaluated on ten model farms in 1988.

Our research objectives in sustainable agriculture in North Dakota are similar as those in the North Central Region for low-input agriculture, e.g.

1. Reduce farm input costs
2. Increase net farm/ranch income
3. Abate pollution from farming/ranching
4. Conserve soil, water, fossil fuels, and other natural resources
5. Enhance economic and social well-being

One important aspect of all forms of sustainable agriculture will be the absolute need for high management techniques and equipment, especially information management and application to each unique farm/ranch enterprise.

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### Statement of J.C. Gardner, NDSU Carrington Research Extension Center

A unique set of circumstances exist in today's agriculture. Crops are in surplus. The public's concern over the quality of our nation's food and water is growing. Our agricultural producers are faced with an ever tightening cost/price squeeze. The sphere of government influence in production is vast, with annual farm program benefits determining the crop which is planted and the land which is used. These factors have combined to create a challenging economic climate for both rural America and the actual producers of our food and fiber. Some producers are meeting this challenge with a strategy similar to what they've used in the past - by raising yield at a rate faster than what they spend. Others are looking at cutting their costs of production by reducing inputs. If one considers all the components which have created today's agricultural situation, it seems encouragement should be given those production practices which decrease the cost of production and preserve, or improve, our environment.

North Dakota is among the most rural of states and relies heavily upon agriculture for it's economy. It is a good example of the past trends in agriculture: fewer and larger farms producing fewer commodities. Once diverse operations, growing a handful of the many different crop species and perhaps two or more different kinds of livestock, now grow two or three crops without any livestock. While specialization has it's benefits, it also has problems. Reliance upon two or three commodities leaves little marketing strategy. Beyond economic strategy, the biology of these static production systems is an ever present problem. Pests and diseases are largely controlled without pesticides if carefully planned crop rotations are used. Crop rotations today however, are not dynamically planned and implemented. They are largely decided by the farm program.

Yesterday's farm program and strategy of government involvement in agriculture is easy to criticize. It is much more difficult to come up with better solutions for tomorrow. The precedent set last year in Congress with the appropriation of $3.9 million targeted for *low-input farming systems research and education* however is a fresh start. These funds, distributed throughout the country, have stimulated thoughtful and frank discussion, and new working relationships amongst agricultural professionals from all kinds of institutions and philosophies. Joint research projects and educational programs from people who have not previously talked face to face are competing for these funds. It has been a healthy and long overdue convergence of ideas.

Today's situation is unique. Improved economics and environmental concerns are not often double billed as major objectives for a funding initiative. The continued federal support of this effort has the potential to make profound changes in American agriculture. Here lies the opportunity for the government to anticipate and shape the future use of our land and waters. Give careful consideration to the impact these funds could have on rural and urban America alike. Continued funding for the federal low - input agricultural initiative is needed today.

## NATIONAL ASSOCIATION FOR BIOMEDICAL RESEARCH

### STATEMENT OF BARBARA RICH, ASSOCIATE DIRECTOR

Senator BURDICK. Our next witness will be Frankie L. Trull, the executive director of the National Association for Biomedical Research.

Ms. RICH. Mr. Chairman, my name is Barbara Rich, I am appearing today on behalf of Frankie L. Trull, who is the executive director of the National Association for Biomedical Research. I am her associate director, and she is sorry she couldn't be here today to say hello to you.

Senator BURDICK. In other words, you are pinch-hitting today for her.

Ms. RICH. Everyone seems to be disappointed with the fact Frankie is not here and it is me instead. I won't take it personally.

As you know, the National Association for Biomedical Research, we call it NABR, represents more than 300 medical and veterinary schools, academic and professional societies, voluntary health organizations and research-related companies who all share in common the fact that they are committed to the continued humane and responsible use of laboratory animals in research that saves lives not only of humans, but of other animals.

We very much appreciate your support in the past, Mr. Chairman, and we are glad to have the opportunity today to tell you, once again, why we think the Animal Welfare Inspection Program of APHIS must have an increased appropriation. Senator, each year, our testimony before your subcommittee seems to coincide with World Laboratory Animal Liberation Week. Starting last week and continuing through the end of this month, protesters will demonstrate at research facilities in virtually every State.

These activists claim that research involving laboratory animals is cruel and abusive. Until they are able to stop research entirely, one of the protesters' interim demands is to give their representatives access to research facilities for inspection. In addition to not trusting that researchers treat laboratory animals humanely, animal activists believe that the U. S. Department of Agriculture's Inspection Program is completely ineffective.

While it is a small minority of people who have this opinion, they are exceedingly successful in attracting media attention. For example, last week, Saturday night, animal research was featured on CBS News' West 57th Street and the Oprah Winfry Show airing today is devoted to the subject.

Much of the national television coverage has been positive and balanced. But all too often, animal activists use such opportunities to plant the seeds of doubt in the general public's mind.

I don't think I have to tell you, Mr. Chairman, how emotional this issue can become. In December, we understand that one pollster found that the three top subjects of mail received by Members of Congress was social security and Medicare, the budget deficit, and animal protection.

Congress has already responded to the public concerns being raised with two major new laws regulating research and testing of animals, and these are the 1985 amendments to the Animal Welfare Act and the very explicit provisions of the Public Health Service Act.

Research facilities and scientists are responding with increased public education programs, explaining the importance of animals in research, as well as the importance of the highest quality care for the research animals that are needed.

In order to comply with new Federal laws governing research, research facilities are also responding with dollars. Beyond the costs of basic animal care programs that we have always spent, research facilities must now spend hundreds of millions of dollars on animal care committees that include a public member, on mandatory training, recordkeeping, reporting, as well as new facilities.

NABR estimates that it will cost research facilities at least $140 million each year to comply with the recent amendments to the Animal Welfare Act. Over and above the annual costs, we estimate at least $500 million will need to be invested in these facilities. New Federal standards for the housing of dogs and primates which are not yet published are likely to require hundreds of millions of dollars more.

Mr. Chairman, I know we don't have a great deal of time today. In summary, NABR is saying that research facilities are being required by Congress to spend, perhaps, $1 billion to be sure that we have laboratory animal care programs which are above reproach.

We would ask that USDA be required to spend just $10 million in order to perform their critical inspection duties. Without a thorough Federal inspection program, public confidence in research will be difficult to maintain. More important, the lifesaving research and safety testing the public wants and supports will suffer unnecessarily.

Again this year, NABR has joined more than 100 scientific and animal protection groups in a letter urging you and the Appropriations Committee to require a $10 million fiscal year 1989 expenditure for the USDA Animal Welfare Act Enforcement Program. That is a mouthful.

We have a copy of that letter for the record. Should you have any questions or your staff needs more information, I hope you will call on us. Thank you very much for allowing me to testify today. It has been an honor. It is the first time I have ever testified. Thank you very much.

Senator Burdick. Thank you. I am pleased that you are offering a balanced view on the implementation of protective legislation for animals used in research. Do you believe that the $10 million you are requesting for animal welfare will assure laboratory compliance across the board?

Ms. Rich. I think the only thing that can assure the compliance is the cooperation in the programs that research facilities put in place, and believe me, I think the public interest in this issue over the last several years has really sensitized and heightened the awareness of researchers as to this importance.

I think all the time and effort that the facilities are devoting is the best guarantee that we will have programs that everyone can be proud of. What the inspection program investment represents, I think, is the minimum amount we need to invest to be sure the public knows that those programs are in place, and that is why we think it is so important.

Senator Burdick. The next question, I don't know anything about it in my own knowledge, but we see it in the papers.

Ms. Rich. What is that, sir?

Senator Burdick. Does your association know anything about the attitudes that foster the radical behavior of the Animal Liberation Movement? Do you know anything about that?

Ms. Rich. Senator, we should meet later, and we can spend 3 or 4 hours talking about this as a phenomenon. As I said, last week was World Laboratory Animal Liberation Week. The most recent example were eight protesters who broke into the University of California, Los Angeles Brain Research Lab and barricaded themselves in the building. It goes on and on. I can see you smiling.

It is quite serious, in fact, when researchers are not only intimidated, fearful because they will lose, perhaps, their life's work; the benefits of the research they are doing may be lost; but it cost their facilities millions of dollars. The arson that took place at University of California Davis last year was a minimum $3 million loss to that institution.

So it is the loss of research, people's careers and, of course, money.

Senator Burdick. We ~~both agree, this isn't~~ the best way to support our issue?

Ms. Rich. It is not, and I mentioned the West 57th Street show. I don't know if anyone in the hearing room here today saw that show, but, in fact, that was CBS News' emphasis. They showed the increasing terrorist-like activities and, I think, contrasted that to some very positive research that was going on at the University of Michigan was featured.

Senator Burdick. Thank you very much.

Ms. Rich. Thank you.

[The statement follows:]

## STATEMENT OF BARBARA A. RICH

My name is Barbara Rich. I appear today on behalf of the National Association for Biomedical Research, an organization dedicated to the scientific community's interest in the continued humane and responsible use of research animals to improve the health of people and other animals. The membership of my Association -- that is more than three hundred medical and veterinary schools, academic and professional societies, voluntary health organizations and research-related companies -- is grateful for your committee's past support. Once again, we appreciate the opportunity to tell you why we think the federal animal welfare inspection program must have an increased appropriation.

Mr. Chairman, each year our testimony before your subcommittee seems to coincide with World Laboratory Animal Liberation Week. Starting last week and continuing through the end of the month, protesters will demonstrate at research facilities in virtually every state. These activists claim that research involving laboratory animals is cruel and abusive. Until they are able to stop research entirely, one of the protesters' interim demands is to give their representatives access to research facilities for inspection. In addition to not trusting that researchers treat laboratory animals humanely, animal activists believe that the U.S. Department of Agriculture's inspection program is completely ineffective. While it is a small minority of people who have this opinion, they are exceedingly successful in attracting media attention. For example, last week, animal research was featured on "West 57th Street" and "The Oprah Winfrey Show" airing today is devoted to the subject. Much national television coverage has been positive and balanced, but all too often animal activists use such opportunities to plant the seeds of doubt in the general public's mind. I do not think I have to tell you how emotional this issue has become. In December 1987, one pollster found that the three top subjects of mail received by members of Congress were Social Security or Medicare, the deficit and animal protection.

Congress has already responded to the public concerns being raised with two major, new laws regulating research and testing with animals, the 1985 amendments to the Animal Welfare Act and very explicit provisions in the Public Health Service Act. Research facilities and scientists are responding with increased public education programs explaining the importance of animals in research as well as the importance of the highest quality care for the animals that are needed.

In order to comply with new federal laws governing animal research, research facilities are also responding with dollars. Beyond the costs of basic animal care programs, research facilities must now spend hundreds of millions of dollars on animal care committees that include a public member, mandatory training, recordkeeping and reporting, as well as new facilities. NABR estimates that it will cost research facilities at least $140 million each year to comply with the recent amendments to the Animal Welfare Act. Over and above the annual costs, we estimate at least $500 million will need to be invested in new facilities. New federal standards for the housing of dogs and primates which are not yet published are likely to require hundreds of millions of dollars more.

Mr. Chairman, I know time is pressed today. In summary, NABR is saying that research facilities have been required by Congress to spend perhaps one billion dollars to be sure we have laboratory animal care programs which are above reproach. We ask that USDA be required to spend just $10 million in order to perform their crucial inspection duties. Without a thorough federal inspection program, public confidence in research will be difficult to maintain. More important, the lifesaving research and safety testing the public wants and supports will suffer unnecessarily.

Again this year, NABR has joined more than 100 scientific and animal protection groups in a letter urging you and the Appropriations Committee to require a $10 million FY 1989 expenditure for the USDA Animal Welfare Act enforcement program. I would like to submit a copy of that letter for the record now. Should you have any questions, or if your staff needs more information, please call on us.

Thank you very much for allowing me to testify today. On behalf of NABR, thank you for all your past help and your continued attention to this small but critical program.

## Summary

The National Association for Biomedical Research (NABR), along with more than 100 scientific and animal protection organizations, respectfully requests an FY 1989 appropriation of $10 million for the enforcement of the federal Animal Welfare Act by the U.S. Department of Agriculture's Animal and Plant Health Inspection Program. The Administration's budget proposal includes only $4.9 million for this purpose, which is a 20% reduction in funding over this year.

NABR estimates that research facilities will spend an additional $140 million each year to comply with the Animal Welfare Act as amended in 1985. Expenditures of close to $1 billion for capital improvements are also likely to be necessary to met new federal requirements for laboratory animal facilities. In view of this, as well as the need to maintain public confidence in research, NABR believes a federal commitment of just $10 million for a consistent, high quality animal welfare compliance program is well warranted.

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## LETTER FROM THE AMERICAN ACADEMY OF OTOLARYNGOLOGY HEAD AND NECK SURGERY, ET AL.

April 18, 1988

The Honorable Quentin N. Burdick
Chairman, Appropriations Subcommittee
on Agriculture, Rural Development and
Related Agencies
United States Senate
SD-140 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Chairman:

The U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS) program for enforcement of the Animal Welfare Act will suffer a $1.3 million reduction under the President's FY 1989 Budget, that is approximately a 20% decrease. Such a request is totally inconsistent with new and expanded responsibilities given to APHIS in the most recent amendments to the Act and with Congress' repeated action to preserve funding for this small but critical program. Only $4.9 million is proposed by the Administration for inspection efforts in the coming year. In FY 1985 and 1986, USDA reprogrammed funds to give APHIS approximately $6 million for animal welfare activities. Congress appropriated a similar amount for FY 1987 and the current year.

Your continued leadership in providing APHIS with the resources necessary to carry out its important animal welfare duties has been appreciated. Once again, the undersigned scientific and animal protection organizations must call upon you to ensure that adequate funds are made available for the consistent, high quality inspection program the public expects and Congress has already mandated.

In view of the recent Animal Welfare Act amendments attesting to the public's interest in the care and treatment of animals, the organizations listed below support an FY 1989 appropriation of $10 million for APHIS animal welfare activities. The recommended increase is required so that, as required by law, all covered facilities are regularly and carefully inspected, that inspectors are thoroughly trained, and that APHIS has the management and administrative support to carry out its new responsibilities.

Your consideration of this recommendation will be most appreciated. Please contact Christine Stevens, Society for Animal Protective Legislation (202-337-2332), or Frankie Trull, National Association for Biomedical Research (202-857-0540), should you or your staff have questions or require additional information. Thank you for all of your assistance.

Sincerely,

American Academy of Otolaryngology Head and Neck Surgery
American Association of Thoracic Surgery
American Association of Chairmen of Departments of Psychiatry
American Association of Directors of Psychiatric Residency Training
American College of Surgeons
American Diabetes Association
American Federation for Clinical Research
American Heart Association
American Humane Association
American Medical Association
American Neurological Association
American Pediatric Society
American Physiological Association
American Psychiatric Association
American Psychological Association
American Society of Hematology
American Society of Microbiology
American Society for the Prevention of Cruelty to Animals
American Veterinary Medical Association
Animal Allies Humane Society, Inc., MN
Animal Care and Welfare/SPCA, PA
Animal Protection Institute
Animal Protective League, WI
Animal Rescue League of New Hampshire
Animal Welfare League, WI
Animal Welfare League of Arlington Co., VA
Animal Welfare League of Montgomery Co., IN
Arkansas Humane Society
Association for Academic Psychiatry
Association for Academic Surgery
Association of Academic Departments of Otolaryngology
Association of American Medical Colleges
Association of American Universities
Association of Medical School Departments of Biochemistry
Association of Medical School Pediatric Department Chairmen

Association of Orthopedic Chairmen
Association of Professors of Medicine
Association of University Anesthetists
Association of University Professors of Opthalmology
Association of University Radiologists
Bellingham Whatcom County Humane Society, WA
Black Hawk Humane Society, IA
Bolling Green/Warren Co. Humane Society, KY
Broome County Humane Society, NY
Capital Humane Society, NE
Chautauqua County Humane Society, NY
Citizen's Animal Society, UT
Citizens for Animal Welfare Education, MI
Corinth Alcorn Humane Society, MS
Cosmetic, Toiletry & Fragrance Association
Dana-Farber Cancer Institute, MA
Delaware Humane Association
Deming-Luna Co. Humane Society, NM
Denver Dumb Friends League
Elkhart County Humane Society, IN
Federation of American Societies for Experimental Biology
Florida Federation of Humane Societies
Fund for Animals
Greater Anoka County Humane Society, MN
Halifax Humane Society of Volusia County, FL
Hawaiian Humane Society
Helen Woodward Animal Center, CA
Help Save the Animals/Wasatch Humane, UT
The Humane Society, Inc., MD
Humane Society of Central Oregon
Humane Society of Grand Forks, ND
Humane Society of Huron Valley, MI
Humane Society of Midland County, MI
Humane Society of Rochester and Monroe Counties, Inc., NY
Humane Society of Saginaw County, MI
Humane Society of Tampa Bay, FL
Humane Society of the United States
Humane Society Shelter, MN
Iowa Federation of Humane Societies
Juvenile Diabetes Foundation
Linn County Humane Society, IA
Logan County Humane Society, KY
Massachusetts Society for the Prevention of Cruelty to Animals
Michigan Humane Society
Mississippi Animal Rescue League
Nashville Humane Society, TN
National Alliance for Animals
National Association for Biomedical Research
National Assoc. of State Universities and Land Grant Colleges
Newton Animal Rescue League, IA
Panhandle Humane Society, TX
Pharmaceutical Manufacturers Association
Progressive Animal Welfare Society, WA
Pulaski County Humane Society, AR
Quincy Humane Society, IL
Rochester Animal Control, NY
Sacramento Society for the Prevention of Cruelty to Animals, CA
Society for Animal Protective Legislation
Society for Neuroscience
Society for Pediatric Research
Society of Academic Anesthesia Chairmen, Inc.
Society of Critical Care Medicine
Society of University Otolaryngologists
Souris Valley Humane Society, ND
Sullivan Co. Society for the Prevention of Cruelty to Animals, NY
Surgical Infection Society
The Endocrine Society
Tippecanoe County Humane Society, IN
University Association for Emergency Medicine
Washington Humane Society, DC
Western Pennsylvania Humane Society
Wisconsin Humane Society

## WATER AND WASTEWATER EQUIPMENT MANUFACTURERS ASSOCIATION

### STATEMENT OF O. ROY LANGSLET, DIRECTOR OF MARKETING, AIR PRODUCTS AND CHEMICALS, INC., ON BEHALF OF THE WATER AND WASTEWATER EQUIPMENT MANUFACTURERS ASSOCIATION

Senator **BURDICK**. The next witness will be Mr. Roy Langslet, Water and Wastewater Equipment Manufacturers Association. Welcome to the committee.

Mr. **LANGSLET**. Thank you. Mr. Chairman and distinguished members of the Committee, I am Roy Langslet, sales manager for Air Products and Chemical, Environmental Products Department, and a member of the board of Water and Wastewater Equipment Manufacturers Association.

Our association appreciates the opportunity to appear before this committee today to present our views on fiscal 1989 funding for the Farmers Home Administration Water and Waste Disposal Program. Mr. Chairman, our Nation should take pride in its recent accomplishments to reverse decades of neglect to the condition of our country's water resources. Enactment of strong national mandates which prohibit the release of pollutants into our rivers and streams have resulted in major improvements in the quality of life's most vital resource—water.

I must stress, however, that these improvements have served only to curtail future deterioration of this resource. The task which lies ahead to improve the quality of our water resources in the area of toxic and hazardous pollutants is challenging. For our Nation's rural communities, this challenge can only be viewed as monumental.

Allow me to point out several relevant factors which bear light on the challenges we face. Under the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act, all communities must achieve a minimum standard of treatment of their wastewater discharges. Within the next 2 months, all wastewater treatment facilities must be in compliance with these standards.

A community must either have wastewater treatment facilities in operations and meeting these standards, or under a court-enforced schedule, to achieve compliance within a reasonably short period of time. For the larger communities, we are close to meeting this requirement. Such is not the case for smaller communities, with over 1,000 facilities expected to be in noncompliance with the law and subject to penalties and fines. These towns, which represent a major portion of rural America, have yet to obtain the very basic level of treatment for their waste.

On the drinking water side, there exists over 200,000 public water systems. Over two-thirds of these systems serve less than 500 people. With enactment of the 1986 Amendment to the Safe Drinking Water Act, these systems will now face unprecedented requirements for the treatment of their water supplies for public consumption.

Where there previously existed only 23 standards for drinking water quality, an additional 80-plus standards must now be created to ensure the safety of the water consumed for public use. These requirements will include mandatory filtration and disinfection practices as well as extensive monitoring and reporting requirements.

From a fiscal as well as technical perspective, rural America faces the monumental task of protecting their citizens from the contaminated water supplies of waterborne diseases. This leads me to my purpose for addressing your committee today.

The Farmers Home Administration has been referred to as the source of last resort for rural communities seeking assistance in their financing through water supply and wastewater treatment needs. For most rural communities, the Farmers Home Administration is the only source of assistance available to them, built on a system of low-cost loans repayable to the Government and under extreme conditions, supported by direct grant assistance.

The Farmers Home Administration's Water and Waste Disposal Program is designed solely to meet the pressing needs of rural communities unable to attain normal financing. The Farmers Home Administration Water and Waste Disposal Program helps meet all these needs. The program is authorized to provide financial assistance for water and waste treatment facilities in rural areas of up to 10,000 people with a priority to public areas smaller than 5,500 people.

Since its inception, the Farmers Home Administration has provided over 22,000 water systems and nearly 9,000 sewer systems for rural communities. There currently exists over $1 billion in applications on hand for Farmers Home loan and grant assistance.

WWEMA recognizes the need for financial constraint in this period of high deficits, but this worthwhile program is financially responsible, consider that the majority of the program is a loan program. In fact, since the program's inception in 1937, $9.4 billion in loans have been awarded with a default rate of only 0.025 percent.

The Farmers Home Water and Waste Disposal Program emphasizes fiscal integrity. Its history demonstrates a proven track record of borrowers fulfilling their obligations. Based on other wasteful Government programs, the Farmers Home program should be praised for its financial prudence.

We urge this committee to support the Farmers Home Administration's Water and Waste Disposal Program at its current funding level of $330 million in loans and $110 million in grants as a minimum requirement for small communities to maintain a healthy and productive standard of living.

WWEMA believes that with Congress, the Farmers Home Administration and industry working together, we will be able to satisfy rural America's future needs. Thank you for this opportunity to present our views.

Senator **Burdick**. Thank you. You mentioned that recently enacted legislation will only ". . . curtail further deterioration of our rural water resources." What is the status of our rural water resources in disposable systems? Absent the many regulatory changes required by the Clean Air Water and Safe Drinking Water Acts, will there be enough FmHA funds to attain them?

Mr. **Langslet**. I think we are going to have to get back to you on that.

Senator **Burdick**. First of all, what is the status of the rural water resources, the disposable systems, as you see it?

Mr. **Langslet**. Their needs? Excuse me. I didn't understand the question.

Senator **Burdick**. Yes. We passed the Safe Drinking Water Act last year. Was that needed?

Mr. **Langslet**. Yes, it was, sir.

Senator **Burdick**. Was it adequate?

Mr. **Langslet**. No.

Senator **Burdick**. What is needed?

Mr. **Langslet**. Excuse me. It was needed, yes, sir.

Senator **Burdick**. What is needed now in addition to what we have already done?

Mr. **Langslet**. We will have to get back with specific numbers, but there is a balance of needs that are in excess of $1 billion now that have not been authorized, and the program, as proposed, is $440 million and there is over $1 billions' worth of need now.

Senator **Burdick**. I have forgotten what the figures were on the Safe Drinking Water Act, but it is certainly more than that for a period of time.

Mr. **Langslet**. We could definitely come up with the figures to substantiate these needs.

Senator **Burdick**. This is just for Farmers Home for loans and grants?

Mr. **Langslet**. Yes, sir.

Senator **Burdick**. Oh, I see. I see. We are talking about two different things. Thank you very much.

Mr. **Langslet**. Thank you.

[The statement follows:]

## STATEMENT OF O. ROY LANGSLET

Mr. Chairman and distinguished members of the committee, I am Roy Langslet, Director of Marketing for Air Products & Chemicals, Inc. and a member of the board of the Water and Wastewater Equipment Manufacturers Association (WWEMA). Our association appreciates the opportunity to appear before this committee today to present our views on fiscal 1989 funding for the Farmers Home Administration's water and waste disposal program.

Mr. Chairman, our nation should take pride in its recent accomplishments to reverse decades of neglect given to the condition of our country's water resources. Enactment of strong national mandates which prohibit the release of pollutants in our rivers and streams, and require additional treatment of water supplies for public consumption, have resulted in major improvements in the quality of life's most vital resource -- water. I must stress, however, that these improvements have served only to **curtail further deterioration** of the condition of this resource.

The task which lies ahead to improve the quality of our water resources in an era of toxic and hazardous pollutants is challenging at best. For our nation's rural communities, this challenge can only be viewed as monumental. Before discussing the crucial role served by the Farmers Home Administration, allow me to point out several relevant factors which bear light on the challenges we face.

### Federal Water Pollution Control Act

Under the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act, all communities must achieve a minimum standard of treatment of their wastewater discharges. Within the next two months, all wastewater treatment facilities must be in compliance with these standards. A community must either have a wastewater treatment facility in operation and meeting these standards, or be under a court-enforced schedule to achieve compliance within a reasonably short period of time

For the larger communities, progress is near completion in meeting this requirement. Such is not the case for smaller communities with over 1,000 facilities (serving a population based of under 10,000) expected to be in non-compliance with the law and subject to future penalties and fines. These towns which represent a major portion of Rural America have yet to obtain the very basic level of treatment of their wastes.

## Safe Drinking Water Act

On the drinking water side, there exists over 200,000 public water systems and 60,000 non-community water systems (such as trailer parks and restaurants). Over two-thirds of these systems serve less than 500 people. With enactment of the 1986 amendments to the Safe Drinking Water Act, these systems will now face unprecedented requirements for the treatment of their water supplies for public consumption.

Where there previously existed only 23 standards for drinking water quality, an additional 80-plus standards will now be created to ensure the safety - from a health perspective - of the water consumed for public use. These requirements will include mandatory filtration and disinfection practices as well as extensive monitoring and reporting requirements. From a financial as well as technical perspective, Rural America faces a monumental task in ensuring the protection of their citizens from contaminated water supplies and water-borne diseases.

## Financial Options

What is being done to assist small communities in meeting these costly - yet necessary - environmental standards? For wastewater treatment purposes, the EPA Construction Grants Program has served to provide financial assistance in constructing wastewater treatment facilities. These funds are allocated by the states under a priority system based on the greatest needs both in terms of pollution severity and population served with the majority of funds dedicated to larger communities with greater population centers.

This program faces an uncertain future with dramatic decreases in funding proposed by the Administration and a transition from direct federal grants to state-run loan programs. The degree to which these loans will be affordable to smaller communities in the future remains in doubt.

No similar financial program outside of the Farmers Home Administration is available for water supply activities. Congress recognizes the enormous burden which will be placed upon Rural America in meeting the new provisions of the Safe Drinking Water Act. There exists a proposal in the Senate to establish a loan program dedicated primarily to the drinking water needs of small communities. However, we have been advised that there exists little chance for consideration of this proposal during this session of Congress and the long-term outlook for federal capitalization of this program remains bleak.

## Solution

This leads me to my purpose for addressing your committee today. The Farmers Home Administration has been commonly referred to as the "source of last resort" for rural communities seeking assistance in financing their water supply and wastewater treatment needs. For most rural communities, the Farmers Home Administration is the only source of assistance available to them built on a system of low-cost loans repayable to the Federal government and, under extreme conditions, supported by direct grant assistance. The Farmers Home Administration's water and waste disposal program is designed solely to meet the most pressing needs of rural communities unable to obtain financing for their water and waste needs from other sources.

These needs are basic: constructing, repairing or modifying water supply, treatment and distribution facilities so that when citizens of these communities turn on their tap, they can rest assured that they will have a supply of clean and healthy water to drink-- free from dangerous contaminants that could threaten their health.

These needs consist of: constructing, repairing and improving waste collection, treatment and disposal facilities so that these communities know that dangerous wastes are being taken care of in an environmentally-sound way and are being treatment and disposed of properly -- preventing illness and ensuring the environmental integrity of the small rural areas that make this country unique and beautiful.

These needs are also vital to economic growth. A major consideration of any industry seeking relocation is the condition of the area's water and sewer disposal facilities. Rural America must be allowed to compete along with other communities for new growth and economic revitalization.

The Farmers Home Administration's water and waste disposal program helps meet all these needs. The program is authorized to provide financial assistance for water and waste treatment facilities in rural areas and towns of up to 10,000 people, with priority given to public areas smaller than 5,500 people. Since its inception, the Farmers Home Administration has provided over 22,000 water systems and nearly 9,000 sewer systems for rural communities. There currently exists over $1 billion in applications-on-hand for Farmers Home loan and grant assistance.

WWEMA recognizes the need for financial constraint in this period of high deficits. But this worthwhile program is extraordinarily and financially responsible. Consider that the majority of the program is a loan program. In fact, since the program's inception in 1937, $9.4 billion in loans have been awarded with a default rate of only .025 percent. Borrowers must have the legal capacity to repay loans and must construct financially-sound facilities based on taxes, assessments, revenue fees or other satisfactory sources of income.

The whole Farmers Home water and waste disposal program emphasizes fiscal integrity. Its history demonstrates a proven track record of borrowers fulfilling their obligations. Based on other wasteful government programs, Farmers Home should be praised for its financial prudence.

### Recommendation

**WWEMA urges this committee to support the Farmers Home Administration's water and waste disposal program at its current funding level of $330 million in loans and $110 million in grants as a minimum requirement for small communities to maintain a healthy and productive standard of living.**

Any further reductions will have a significant negative impact on economic and community development, along with the environmental quality of Rural America. Water supply and treatment capacity is an essential element in achieving each of these goals. WWEMA believes that with the Congress, Farmers Home Administration and industry working together, we will be able to satisfy Rural America's future needs of that invaluable commodity -- water! Thank you for this opportunity to present our views.

## NATIONAL CATTLEMEN'S ASSOCIATION

### STATEMENT OF BURTON ELLER, VICE PRESIDENT, GOVERNMENT AFFAIRS

Senator BURDICK. Our next witness will be Burton Eller, vice president of government affairs, National Cattlemen's Association. I suppose you know all our people out in North Dakota?

Mr. ELLER. Yes, sir. They were mostly in last week, too. I assume they came by to see you.

Senator BURDICK. You may proceed.

Mr. ELLER. Thank you, Mr. Chairman, for the opportunity to testify before the Committee about the 1989 budget for USDA. We believe, as you and many of your colleagues do, that spending cuts are probably in order and that the deficit must be reduced.

While the USDA budget is only a small part of the total, we believe it can assume some of the responsibility toward reducing the overall deficit. However, I would hasten to point out that USDA, both this year and in the past, has probably taken more than its share of program cuts. With this in mind, it is important to make the best of those available funds.

I would like to just isolate a few agencies and just make a couple of comments about each, if I may. The first will be the Agriculture Research Service, where we support the increased research activities of $20.3 million. ARS has clearly established itself as a problem-solving research agency. This agency has been very responsive to the research needs of agriculture, including the beef cattle industry.

The Nation's cattlemen, however, share disappointment with others in animal agriculture about the continuing inequity in the ARS budget between plant science and animal sciences research. The income in agriculture is about even for animals and plants at the farm level, but it would take 38 years of increases like this year's animal science increase to even get equal to the plant science research as it stands right now in the 1989 budget.

Cattlemen are concerned that the American and foreign consumers continue to have the confidence in our food safety and wholesomeness in beef. We have every reason to be proud of beef's safety record, but we believe there is room for progress in this area. Therefore, we strongly support the $3.5 million dollar initiative under the commodity conversion and delivery line item for food safety research on meat and dairy products.

As in the proposed budget for ARS, the budget for the Cooperative State Research Service illustrates a continuing inequity between the animal and plant sciences programs. The cattlemen support a combined increase of $4.4 million for plant and animal competitive research grants, the request that Congress distribute the funds more evenly between plant and animal science research.

The only funding for animal health research, in the past, a combination of special grants and section 1433 funds, has again been deleted by the administration. This has become an annual event. This is an especially poor time to discourage long-term investigation into complex disease processes that represent the next frontier in animal health research.

A long-term and reliable source of funding is desperately needed. Until that is established, funding for animal health research through CSRS must be restored again this year. The Extension Service has the ability to apply new technology to production practices. It can play a key role, here. Therefore, with the cattlemen's support, it has proposed a $10 million competitive grants program for agricultural profitability.

The awarding of competitive grants must be based on the project's ability to solve producer-identified problems using an integrated resource management concept known as IRM. The National Cattlemen's Association urges the Extension Service to utilize the national IRM Coordinating Committee for program development in agricultural profitability.

The Economic Research Service. Current relevant and unbiased research is critical to entrepreneur producers adapting for financial survival in this evolving economic environment in agriculture. The National Cattlemen's Association supports the funding level for ERS with the provision that ERS actively seek and adhere to input and advice from the beef cattle industry defining relevant research projects.

The National Statistics Service. The cattle industry is the largest sector of the U.S. agriculture as a whole. Beef producers make short-term and long-term decisions based on data collected and reported by the National Agriculture Statistics Service.

In the absence of Government income assistance programs, beef producers bear the full impact of decisions based on faulty or ill-timed reports. Accuracy and timeliness of the NASS reports are, therefore, crucial to cattlemen making major decisions.

To address the above concerns, cattlemen would like to request that NASS maintain existing data, consider adding or amending data, and strive to improve the accuracy of all its reports.

Animal Plant Health Inspection Service. We would like to insert here, Mr. Chairman, that we are very supportive of the announcement made by the Department yesterday appointing Dr. Jim Glosser as the new Administrator for APHIS. We are very supportive of that agency. It has been responsible and responsive to the cattle industry for protecting it from dangerous diseases and pests. The brucellosis program is making good progress toward limiting Federal involvement by 1991.

We would like to encourage APHIS to look at the animal health programs of Mexico, because we are now importing 1 million head of cattle, and our Government may have to help them with some of the Mexican Government's programs.

We are concerned, Mr. Chairman, that the Animal Damage Control budget has been cut from $24 million to $13 million. As you know, this program is now designed to benefit not only those in the West, but also the East, Midwest, and South with their animal damage problem.

Just briefly, the Agriculture Marketing Service has been very responsive to the beef industry, and we support their increase for market news programs to improve the timeliness and accuracy of market news information.

We are generally supportive of the Food Safety and Inspection Service budget. We depend on that agency to assure the consumer of safe and wholesome beef. We are pleased that this year, for the first time in a long time, the Administration did not propose user fees for meat inspection.

Last, Mr. Chairman, I would like to address the Packers and Stockyards Administration. The beef industry is in the midst of significant structural change. Mergers and acquisitions within the beef packing industry have resulted in a four-firm concentration ratio of nearly 70 percent.

While it appears that these trends are the result largely of economic forces, concerns have been raised about the evolving structure of the industry and continued competitive pricing of beef products. Because of the increased potential for price manipulation or selective price reporting, ongoing surveillance is a necessity. Therefore, the National Cattlemen's Association supports the proposed increase in funding levels for P&S so that they can carry out this responsibility to ensure that the livestock markets are free from unfair or deceptive practices.

Thank you, Mr. Chairman.

Senator **Burdick**. Thank you for your statement. With the recent publication of the National Research Council study entitled "Designing Foods," much attention has been focused on the American diet, proper food labeling, and the consumption of animal products. What steps are the cattlemen taking to promote a better understanding of the variety and nutritional quality of meat products available to them?

Mr. **Eller**. Mr. Chairman, we are addressing the beef product that is on the consumer's plate today. With the help of the Department of Agriculture, the Academy of Sciences, and several studies that have either been completed recently or are being completed, have new data showing that a leaner animal producing leaner beef for the consumer is very much underway.

We have improved nutrition; we have improved genetics; we have improved the way we package, trim, cut and merchandise beef, so that there is a leaner product with eating satisfaction and quality in the store.

A case in point is that in the last 5 years, we have found the Institutes of Health many times using 30- to 50-year-old data on beef. The current researchers have apparently been unaware that there is a major difference between beef carcasses untrimmed and uncut and cooked, plate portions of beef. Therefore, much of the data being used in research studies today use the base of fat untrimmed whole carcasses, and when we convert today's carcass to a cooked plate portion, beef has much less cholesterol, much less fat, is very much higher in protein, amino acids and essential nutrients and vitamins and minerals than most physicians, most biomedical researchers and most diet health nutrition researchers ever figured in their research.

Senator **Burdick**. Are you going to bring more people up to date on this?

Mr. **Eller**. Yes, sir, and we have another big issue facing us, of course, which is the beef checkoff program, as it is known. It is a self-help dollar-a-head at market program. We have tried it for 18 months. Congress allowed us enabling legislation to get a program up and running to do research to inform consumers, to do some promotional advertising. We will be voting on that May 10 in a national referendum. If it passes, a large portion of that money will be used in future years to convey not only to researchers but to the consumers that there is a new product out there.

Senator **Burdick**. Thank you very much.

Mr. **Eller**. Thank you.

[The statement follows:]

## STATEMENT OF J. BURTON ELLER, JR.

The National Cattlemen's Association appreciates the opportunity to present its views on the 1989 budget for the U.S. Department of Agriculture. In general, we support the budget which has been proposed by the Administration. It is a realistic approach under the current circumstances.

We believe that the federal deficit must be reduced. Spending cuts are necassary in order to bring down this deficit. While the USDA budget is only a small part of the total, we believe it can assume some of the responsibility toward reducing the overall deficit.

The USDA has taken its share of program reductions in the past and the 1989 budget indicates it will take further cuts. With this in mind it is important to make the best use of available funds.

The following are our concerns and recommendations in certain areas of the USDA budget and programs:

### RESEARCH AND EDUCATION

A. Agricultural Research Service (ARS)

NCA supports the proposed budget increases for ARS research activities of $20.3 million. ARS has clearly established itself as a problem-solving research agency. The agency has been very responsive to the research needs of industry, including the beef cattle industry. ARS has streamlined its administrative procedures to make more funds available for badly needed research. ARS's efforts to become more efficient and more productive are especially appreciated by cattlemen who have also struggled with tight budgets for several years.

The nation's cattlemen, however, share the disappointment with others in animal agriculture of a continuing inequity in the ARS budget between plant science and animal science research. Farm income from the sale of animals is approximately equal to income from the sale of plant products. Yet plant research receives more than double the amount of support from ARS. This inequity has persisted, and should not be allowed to continue. We urge Congress to correct this problem.

Considering the percentage increase in animal science research suggested in the Administration's budget, it would take 38 years of similar increases to move the funding level for animal science research to the point where plant science research is today. Animal agriculture faces many new challenges, and this should be recognized by the federal government and a larger increase in animal science research should be budgeted. Again, the National Cattlemen's Association strongly urges Congress to correct this inequity and boost animal science research to the point that it reflects the importance of animal agriculture to the economy of the United States.

If the die has been cast, and plant science research is going to continue to be favored over animal science research, ARS should at least place additional emphasis on the utilization of plants by animals. Specifically, more emphasis should be placed on range plant research - an area of research that has been neglected.

Cattlemen are deeply concerned that American and foreign consumers have confidence in the safety and wholesomeness of beef. We have every reason to be proud of beef's safety record, but we believe there is room for progress in this area as is the case with all foods. We therefore strongly support the $3.5 million initiative under the Commodity Conversion and Delivery line item for food safety research on meat and dairy products.

B. Cooperative State Research Service (CSRS)

As in the proposed budget for ARS, the proposed budget for CSRS illustrates the inequity between animal and plant science research. NCA supports the combined increase of $4.4 million for plant and animal science competitive research grants, but requests that Congress distribute that amount evenly for plant and animal science research. Animal science research would still occupy "second place", but at least the inequity would not become larger as would be the case if Congress does not change the Administration's proposed budget.

The only sources of funding for animal health research (a combination of special grants and sec. 1433 funds) has again been deleted by the Administration. This has become an annual event. Meanwhile, animal health researchers are left in limbo, not knowing from year to year if their research efforts will be supported. This is an especially poor time to discourage long-term investigation into complex disease processes that represent the next frontier in animal health research. A long term and reliable source of funding is desperately needed. Until it is established, funding for animal health research through CSRS must be restored.

C. Extension Service (ES)

The application of new technology to production practices is an increasingly important component to profitability in Agriculture. The Extension Service can play a key role in technology transfer. However, that role is dependent upon the development and implementation of innovative, problem-oriented programs that are responsive to agriculture's rapidly changing needs. Competitive grant funding is an efficient and proven method to encourage such programs. Intrastate and interstate cooperation will be fostered by building on the strengths of each state extension service rather than perpetuating individual and system-wide weaknesses. Therefore, the National Cattlemen's Association supports the proposed $10 million competitive grant program for Agricultural Profitability.

Awarding of competitive grants must be based on the project's ability to solve producer identified problems using an integrated resource management (IRM) concept. The cattle industry has already taken steps to help develop the IRM concept on a local, state, and national basis by appointing a National IRM Coordinating Committee. The committee is composed of producers, veterinarians, lenders, extension personnel, allied industry representatives, and researchers. The National Cattlemen's Association encourages the Extension Service to utilize the National IRM Coordinating Committee for program development in Agricultural Profitability.

## ECONOMICS

D. Economic Research Service (ERS)

The beef cattle industry has become increasingly aware that a multitude of government policies and programs affect its structure and profitability. Government grain programs, foreign trade policy, and tax policies in addition to federal monetary and fiscal policies are not directly targeted at the livestock industry, but have major implications for the economic well-being of livestock producers. Other issues including concentration of the packing industry, impacts of biotechnology, forward contracting, alternative marketing systems, and risk management are of vital economic concern to the beef cattle industry.

Current, relevant, and unbiased research is critical to entrepreneural producers adapting for financial survival in the evolving economic environment. The National Cattlemen's Association supports the proposed funding level for the Economic Research Service, with the provision that the ERS actively seek and adhere to input and advice from the beef cattle industry defining relevant research topics.

E. National Agricultural Statistics Service (NASS)

The beef cattle industry is among the largest sectors of U.S. agriculture. Beef producers make short and long-term business decisions based on data collected and reported by the National Agricultural Statistics Service (NASS).

In the absence of government income assistance programs, beef cattle producers bear the full impact of decisions based on faulty or ill-timed reports. Accuracy and timeliness of NASS reports are therefore crucial to cattlemen making major business decisions. In addition, changes in cattle marketing and fabrication methods have impacted the volume traded and relevance of some NASS price series.

To address the above concerns, NCA requests that NASS:

1) maintain existing data series
2) consider adding or amending data series to reflect changes within the industry
3) strive to improve the accuracy and timeliness of all reports

NCA supports the proposed funding levels for NASS with the provision that efforts continue to keep the data accurate, timely and relevant to the manner in which beef products are processed and marketed.

## Marketing & Inspection Services

F. Animal Plant Health Inspection Service

The NCA is in general support of the Administration's proposed budget for APHIS. This agency has the responsibility to protect the nation's livestock from dangerous diseases and pest.

The Brucellosis eradication program is making good progress towards its goal of limiting federal government involvement by 1991. There are 43 states with either free or "A" status and only two states remain in the "C" category. We believe there must be ample funding for this program in order for the program to stay on schedule to reach the 1991 goal. We also believe the agency must be allowed the necessary discretion to manage the program in order to get the most value for dollars spent.

The NCA membership believes it extremely important to protect the health of our cattle by assuring necessary inspection and quarantine of imported live animals. This may also require APHIS to assist the Government of Mexico with its animal health programs. Imports of feeder cattle from Mexico have grown to over 1,000,000 head for each of the last two years.

The proposed 1989 Budget for Animal Damage control has been cut from $24.4 million to $13 million. NCA supports continued funding at the current 1988 level of $24.4 million. Livestock losses due to predators continues to plague much of the west and has now spread into the east with a growing presence of coytoes being confined all along the eastern U.S. It is imperative that funding be made available to those states where animal damage control programs have become more diverse as in the west with current wolf control costs escalating and in the east where new predators have established themselves.

G. Agricultural Marketing Service (AMS)

NCA supports the proposed $0.7 million increase in the market news program "to improve the timeliness and accuracy of market news information". As indicated in other testimony, these factors are critical to livestock producers making major business decisions.

H. Food Safety Inspection Service

The NCA supports the funding levels proposed by the Administration for the FSIS. Cattle producers depend on this agency and the meat inspection system to assure the consumer of a safe and wholesome product.

We are pleased the Administration did not propose user fees for meat inspection.

Food safety is a very important concern for producers and consumers alike. The NCA has a beef safety assurance taskforce that has been very active in recent years in developing recommendations which will continue to make our product safe and wholesome. This includes working and consulting with FSIS.

We support H.R. 3735 introduced by Representatives de la Garza and Stenholm, a bill to provide for a research program to examine and enhance agricultural production and food processing systems. We believe this kind of research is essential before changes are made or new standards are set in the meat inspection program.

I. Packers & Stockyards Administration (PSA)

The beef industry is in the midst of significant structural change. Mergers and acquisitions within the beef packing industry have resulted in four firm concentration ratios near 70 percent. While it appears that these trends are the result of economic forces, concerns have been raised about the evolving structure of the industry and continued competitive pricing of beef products. Because of the increased potential for price manipulation or selective price reporting, ongoing surveillance is necessary. Therefore, the National Cattlemen's Association supports the Administration's proposed increase in funding levels for the Packers & Stockyards Administration so that they may carry out this responsibility to ensure that the livestock markets are free from unfair or deceptive practices.

## AMERICAN PHYSIOLOGICAL SOCIETY

### STATEMENT OF DR. MARTIN FRANK, EXECUTIVE DIRECTOR

Senator **BURDICK**. Our next witness will be Dr. Martin Frank, executive director of the American Physiological Society.

Dr. **FRANK**. Thank you, Mr. Chairman. Unfortunately, we often times get confused with the American Psychological Association. It seems to be a little bit easier to pronounce than the Physiological Society.

Senator **BURDICK**. I think it is my tongue today, I don't know.

Dr. **FRANK**. It has probably been a long morning. I am surprised that you are doing as well are you are right now.

Mr. Chairman, my name is Martin Frank. I am the executive director of the American Physiological Society. I am here to speak on behalf of the society's 6,600 members who support the U.S. Department of Agriculture's Animal and Plant Health Inspection Service as the appropriate agency to assure that the standards and regulations of the Animal Welfare Act are properly enforced.

For nearly two decades, the society has been on record in its support of APHIS' role, and since 1982, it has presented testimony and statements urging the Congress to ensure that sufficient funds are made available to enable the agency to inspect facilities and to monitor the care and handling of animals. Adequate funding support for APHIS, so that it can do its job effectively, is the one area wherein the scientific community and animal welfare organizations are in agreement despite a centuries-old disagreement over the use of laboratory animals for the purposes of research, teaching and testing.

This year, the administration is proposing in the APHIS budget a 20-percent reduction in the funds for the enforcement program of the Animal Welfare Act. This proposed reduction is not new; however, as every year since 1982, the administration has sought a means to remove APHIS from its responsibilities for animal welfare as mandated by the Animal Welfare Act, and each year, the Congress has rejected the administration's proposal for which the society applauds Congress for its wisdom.

The administration's proposal for fiscal year 1989 would cut $1.3 million from last year's appropriation of $6.2 million. The society's recommendation to the subcommittee is that APHIS funding should not be reduced, but rather, it should be increased to $10 million, a figure that is in concert with the recommendations of other scientific societies and animal welfare organizations.

In making the recommendation, the society acknowledges the pressures that Congress has, in its efforts to reconcile spending for Federal programs in light of a major budget deficit. However, to succumb to this pressure at this time very well could be the death knell of the Animal Welfare Act as a system for detecting animal abuse inasmuch as insufficient funding of this program would, without doubt, result in inadequate enforcement of the standards and regulations for the care, use, and treatment of animals.

The need for a strong system of enforcement of the standards and regulations for animal welfare, especially for the care of laboratory animals, is of major importance to the American Physiological Society, whose members are among the largest users of animal models for purposes of research and clinical teaching.

Furthermore, there is a growing public interest in animal welfare, which the Congress certified in 1985 by its amendments to the Animal Welfare Act that raise the standards for animal care and provided additional restrictions on animal use.

Continuation of the inspection functions by APHIS is of critical importance, especially if federally funded research is to continue to be conducted under standards prescribed by the Federal Government. The enforcement of the Animal Welfare Act not only is a legitimate function of the Federal Government; it is a function that is best served by the Federal Government.

Any abdication of this responsibility, even if by insufficient funding, would be of serious consequence to the welfare of all animals. The recommendation of $10 million is, in the best judgment of the society, a necessary amount if the public, in general, and the scientific and animal welfare communities, in particular, are to be assured that the Federal Government does intend to have an effective program of enforcement of the Animal Welfare Act.

The figure is based on the fiscal requirements to maintain current operations plus additional funds that will be needed in fiscal year 1989 to implement the standards and regulations that Congress has added to the Animal Welfare Act. The standards and regulations added to the Agency's inspection coverage includes such diverse areas as institutional responsibilities for animal care and use; licensing of dealers; registration of research facilities and requirements for adequate veterinary care at research facilities.

If APHIS or any other Federal agency, for that matter, is to be effective in its inspections, it is most obvious that APHIS will need additional qualified personnel and will have to broaden its training programs to assure that the inspectors are capable of assessing proper veterinary care and institutional animal care and use as now prescribed by law.

It is the society's belief that in the review of appropriations for programs of the Department of Agriculture, the funding of the program to enforce the provisions of the Animal Welfare Act must be given every consideration because an effective inspection program is essential to maintain public confidence in research involving the use of animals.

The society is committed to the conduct of research and teaching under the optimum of scientific and ethical standards and conditions, including the humane and conservative use of animals. The society believes that Congress also shares in that commitment by its demonstrative legislative interest to assure the public that animals are cared for humanely.

Mr. Chairman, the American Physiological Society appreciates the opportunity given by the subcommittee to express its concerns as to the need at this time to increase the funding for the enforcement of the Animal Welfare Act. Should you have any questions, I would be pleased to answer them at this time. Thank you.

Senator BURDICK. Thank you. With respect to the Federal laboratories conducting intermural research, do you believe that self-regulation of the Animal Welfare Act could be effective? If not, why not?

Dr. FRANK. I think for the most part, self-regulation is one of the guideposts for all of the biomedical research communities. Each institution, while it is a Federal extramural laboratory or an extramural laboratory at a university research institution, has its own internal controls and regulations to maintain care and treatment of animals.

The Animal Welfare Act, in its provisions, provides the framework by which there is self-policing of the animal regulation, and the Inspection Service provided by APHIS helps assure that maintenance of adequate facilities are available at all research institutions.

Senator BURDICK. Do you agree that only federally funded laboratories should be inspected? Who should be responsible for inspection of private university research laboratories?

Dr. FRANK. Personally, I think all facilities should be inspected, whether or not they are Federal laboratory facilities. The Animal Welfare Act places laboratories, research laboratories receiving Federal funds and animal dealers under the guidelines of the Animal Welfare act. Many of us in the scientific community feel that the Animal Welfare Act provision should be broadened to include those shelters and pounds that hold animals; should include the neighborhood veterinarian as well as all other facilities that maintain animals.

So I think that the act, while it is appropriate for the oversight and assurance of humane care for animals in research facilities, I think it is necessary that humane care for animals be extended beyond just those animals in research facilities.

Senator **Burdick**. Thank you.

Dr. **Frank**. Thank you.

[The statement follows:]

## STATEMENT OF DR. MARTIN FRANK

My name is Martin Frank and I am the executive director of the American Physiological Society. I am here to speak on the behalf of the Society's 6,600 members who support the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) as the appropriate agency to assure that the standards and regulations of the Animal Welfare Act are properly enforced.

For nearly two decades the Society has been on record in its support of APHIS' role and since 1982 it has presented testimony and statements urging the Congress to assure that sufficient funds are made available to enable the agency to inspect facilities and to monitor the care and handling of animals. Adequate funding support for APHIS so that it can do its job effectively is the one area wherein the scientific community and the animal welfare organizations are in agreement despite a centuries-old disagreement over the use of laboratory animals for the purposes of research, teaching, and testing.

This year the Administration is proposing in the APHIS budget a 20 percent reduction in the funds for the enforcement program of the Animal Welfare Act. This proposed reduction is not new, however, as every year since 1982 the Administration has sought by some means to remove APHIS from its responsibilities for animal welfare as mandated by the Animal Welfare Act and each year the Congress has rejected the Administration's proposal, for which the Society applauds the Congress for its wisdom.

The Administration's proposal for Fiscal Year 1989 would cut $1.3 million from last year's appropriation of $6.2 million. The Society's recommendation to the subcommittee is that APHIS funding should not be reduced, but rather it should be increased to $10 million, a figure that is in concert with the recommendations of other scientific societies and animal welfare organizations.

In making the recommendation the Society acknowledges the pressures the Congress has in its efforts to reconcile spending for federal programs in light of a major budget deficit. However, to succumb to this pressure at this time very well could be the death knell of the Animal Welfare Act as a system for detecting animal abuse inasmuch as insufficient funding of this program would without doubt result in inadequate enforcement of the standards and regulations for the care, use, and treatment of animals.

The need for a strong system of enforcement of the standards and regulations for animal welfare, especially for the care of laboratory animals, is of major importance to the American Physiological Society whose members are among the largest users of animal models for purposes of research and clinical teaching. Furthermore, there is a growing public interest in animal welfare which the Congress certified in 1985 by its amendments to the Animal Welfare Act that raised the standards for animal care and provided additional restrictions on animal use.

Continuation of the inspection functions by APHIS is of critical importance, especially if federally funded research is to continue to be conducted under standards prescribed by the federal government. Although there are laws in all 50 states and the District of Columbia that address animal abuse, none of these laws reflect the nature of the Animal Welfare Act. Collectively, these laws are a disparate body of rules, statutes, and regulations incapable--both technically and philosophically--of addressing violations of federal standards and regulations.

Moreover, the enforcement of the Animal Welfare Act not only is a legitimate function of the federal government, it is a function that is best served by the federal government. Any abdication of this responsibility--even if by insufficient funding--would be of serious consequence for the welfare of all animals.

The recommendation of $10 million is in the best judgment of the Society a necessary amount if the public, in general, and the scientific and animal welfare communities, in particular, are to be assured that the federal government does intend to have an effective program of enforcement of the Animal Welfare Act. The figure is based on the fiscal requirements to maintain current operations plus additional funds that will be needed in Fiscal Year 1989 to implement the standards and regulations the Congress has added to the Animal Welfare Act.

The standards and regulations added to the agency's inspection coverage include such diverse areas as institutional responsibilities for animal care and use, licensing of dealers, registration of research facilities, and requirements for adequate veterinary care at research facilities. If APHIS--or any other federal agency for that matter--is to be effective in its inspections it is most obvious that APHIS will need additional qualified personnel and will have to broaden its training programs to assure that the inspectors are capable of assessing proper veterinary care and institutional animal care and use as now prescribed by the law.

Additional personnel and training requirements and adjustments for inflation account for $3.8 million of the Society's recommendation. When this amount is added to the current appropriation level of $6.2 million, the funding recommendation total is $10 million.

It is the Society's belief that in the review of appropriations for programs of the Department of Agriculture, the funding of the program to enforce the provisions of the Animal Welfare Act must be given every consideration because an effective inspection program is essential to maintain public confidence in research involving the use of animals.

The Society is committed to the conduct of research and teaching under the optimum of scientific and ethical standards and conditions, including the humane and conservative use of animals. The Society believes that the Congress also shares in this commitment by its demonstrated legislative interests to assure the public that animals are cared for humanely.

Mr. Chairman, the American Physiological Society appreciates the opportunity given by the subcommittee to express its concerns as to the need at this time to increase the funding for the enforcement of the Animal Welfare Act. Should you or any member of the subcommittee have any questions, I will be pleased to answer them.

## AMERICAN SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS

### STATEMENT OF BARBARA K. PEQUET, DIRECTOR, GOVERNMENT RELATIONS

Senator **BURDICK.** Our next witness is Barbara Pequet, director of government relations, the American Society for the Prevention of Cruelty to Animals.

Ms. **PEQUET.** Thank you, Senator. I am delighted, as Director of Government Relations for ASPCA, to join this chorus of voices in requesting a $10 million appropriation for the APHIS, primarily for the enforcement of the Animal Welfare Act.

The ASPCA is a 122-year-old organization, and we worked a number of years ago for the original passage of the act. We celebrated that success, and we are delighted with the 1985 amendments and improvements. We are here today to say that it is one of the most important bills and one of the most important acts that exists for us.

But it can't be important without good adequate funding. There are four reasons, ways, really, in which the money can be used. Three of them have been covered extensively today. They primarily are that we need and must have upgraded enforcement. The scope of the work of APHIS is very broad, and they have an immense amount of work to do. It includes inspections and licensing and compliance inspections and investigations and prosecutions, and a huge enforcement arm is needed.

But until those well-trained staff have an adequate number of staff, which takes money, that enforcement effort can't be as vigorous and as extensive as we want it. The second reason is money is needed for preventive efforts. In order to have this arm be effective, we need to have it in place; have people know that more inspections are going to happen on an unannounced basis and that they will occur at any time. An increase in the number of inspections will deter future abuses to animals.

The third reason, we all know, hasn't been highlighted so much this morning, but it is that the Information Service at the National Agricultural Library has been established, and we are all very delighted to have it. Its purpose is the reduction of duplications in experiments and in the sharing of information, and working on the alternatives to the uses of animals in research—all are very important.

Nonetheless, that money, $750,000, is needed still to hire and train more competent staff, to better serve the public, to stock the library with journals and magazines that are much needed and to upgrade the data base there at the library, and its functions.

But the fourth reason I wanted to specifically address here today is, for some reason, it seems like a minor point. It is very important to us, the ASPCA, and to, in fact, 18 other animal welfare groups, and that is that recently, APHIS has shown—the request is that we would like a directive from the subcommittee either in the report or in some other stipulated way, urging that moneys also be used to fund this new policy change at APHIS, which we are pleased with. We think it is a wonderful first step. The situation is that APHIS, Congress, in 1970, passed the Animal Welfare Act, intending that all warm-blooded animals used in specific nonagricultural ways be covered.

APHIS has written regulations not paying attention to use, but simply have said, "certain species will be covered, no matter how they are used." We had a small, rather odd example of this a couple of years ago. ASPCA called APHIS to ask them to come and look at the Unicorn Goat that the Ringling Brothers and Barnum and Bailey Circus had brought to town. They said, "Well, yes, it really is a Unicorn, but it is also a goat, and a goat is a farm animal, even though it is being used in a nonagricultural way; therefore, we have decided that all farm animals aren't covered by the act."

That clearly is not the statutory intention of the legislative history of Congress in passing the Act. What we had been concerned about is this discrepancy between the regulations and the statutory mandate.

Recently, as a result of Representative Towns' bill in the House, and a letter by Senator Cranston asking for an explanation about this discrepancy long-standing between the regs and the statute, the new Acting Administrator Glosser has said, and we are very pleased, has said that the Agency will, in fact, enforce the Act for farm animals used in biomedical research.

That is a first step that is good, as I say. It begins to bring in line the regs and the action of APHIS with the statute and its mandate, and we are here to ask the Committee today to encourage them to go ahead and use funds to include not only farm animals in biomedical research, but in all nonagricultural research, toxicological, drug research, et cetera; to look again at the statute and to realize that the mandate covers farm animals used in exhibition, as well, so Unicorn goats and mules and circus and zoo animals that also happen to roam on the farm are covered.

Third, that all warm-blooded animals used and for specified research testing experimentation and exhibition ways and nonagricultural ways are intended to be protected by the act.

That is our request, and thank you for listening to my testimony.

Senator **Burdick**. Thank you. Several organizations that have testified before this Committee are asking for $10 million in funding for the Animal Welfare Act under APHIS. Will State and local governments be conducting any programs on protection of research animals?

Ms. **Pequet**. Did you say will they or should they?

Senator **Burdick**. Will States, any State and local governments?

Ms. **Pequet**. Will they?

Senator **Burdick**. Appropriate any money or do anything in this area?

Ms. **Pequet**. The States have the antitrust statutes that can help work in protecting animals. Some States actually prohibit access to research facilities. So it is a very checkered pattern for protection. None that I know of are specifically doing the work or should do the work. They don't have the mandate that the Federal law provides to go in. No single private citizen, no organization, effective organizations and no comprehensive pattern of State enforcement will replace this act.

Senator **Burdick**. What private research companies are doing anything in this area? Do you know?

Ms. **Pequet**. I am having a hard time hearing. I am sorry. Why?

Senator **Burdick**. Private research companies, have they been doing anything in this area?

Ms. **Pequet**. I wish I were an authority on what they have been doing. There are different levels of compliance, but I can't tell you about creative programs among private research companies to enhance general enforcement. Some of the other speakers today, I think, would have addressed that better.

Senator **Burdick**. It is fair to say, then, that the focus of your efforts are solely on the Federal level?

Ms. **Pequet**. We are a State-based group from New York, which is right next to North Dakota. We have a Federal orientation and concern, as well. The focus of my work is to see how well Federal statutes and regulations are adhered to.

Senator **Burdick**. My point is that there is no money coming from the State of Minnesota for this program or a like program?

Ms. **Pequet**. Not a comprehensive approach.

Senator **Burdick**. So we are more or less confined to the Federal program?

Ms. **Pequet**. That as right. We are very dependent on this act and this act alone.

Senator **Burdick**. Yes. Thank you. The Senator from Tennessee has arrived. Do you have any questions?

Senator Sasser. No questions, Mr. Chairman. Thank you.

Senator **Burdick**. Thank you.

Ms. **Pequet**. Thank you.

[The statement follows:]

## STATEMENT OF BARBARA K. PEQUET

Mr. Chariman and Members of the Subcommittee, I am Barbara Pequet, Director of Government Relations for The American Society for the Prevention of Cruelty to Animals. The ASPCA is America's first and one of its largest humane organizations. On behalf of our more than 300,000 members and contributors nationwide, I welcome this public opportunity to ask your support for adequate funding for the enforcement of the Animal Welfare Act as administered by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, APHIS.

As a 122 year old organization, we were among the many animal protection groups in 1966 to work for and celebrate the passage of the Laboratory Animal Welfare Act. This one comprehensive law, strengthened and expanded three times since its inception, and in the process renamed the Animal Welfare Act, is the only federal law designed to protect warm-blooded animals in non-agricultural research settings, zoos and roadside exhibits, circuses, the wholesale pet trade, and in interstate transit.

The Animal Welfare Act is important to a broad constituency since it is the one federal law which defines humane treatment for the animals used to entertain us and those used in research experiments. It is this measure, due the 1985 amendments, which set up the Information Service at the National Agricultural Library to help reduce the duplication of animal tests and experiments and make available up-to-date information on alternatives to animal use. Similarly, it is the only law that assures us that the strength and resources of the federal government will be behind the enforcement of its minimum requirements. No other branch of government, no private individual or cluster of organizations has the authority and mandate to license, inspect, reinspect, or prosecute under the Animal Welfare Act.

Although we are well aware of the difficult fiscal constraints resulting from the November 1987 Budget Summit, we request that you do not cut the already insufficient funding for APHIS, as the agency requests, but rather, appropriate ten million dollars for FY 89.

There are four principle ways that this relatively small amount of money in the hands of a committed and active federal agency, will help hundreds of thousands of warm-blooded, sentient animals.

First, enforcement efforts by APHIS can be upgraded. When the Animal Welfare Act is agressively and regularly enforced, animals in zoos, circuses and roadside shows, in dealers' premises, at airports, or in the wholesale pet trade are better assured that their basic needs of food, water, shelter, and sanitation will be met. Animals used in research and testing are similarly better assured basic care in the laboratory setting. The scope of APHIS's enforcement duties is broad. The agency must license or register dealers, handlers, exhibitors, and research facilities. It conducts prelicensing and compliance inspections as well as inspections of animals in transit. Complaints, investigations, and reviews must be conducted and processed. Prosecutions must go forward to carry out the law. In short, APHIS needs adequate funding for a full, well-trained staff which, through surveillance, repeated inspections and follow-up, can bring a higher compliance with existing federal requirements for humane treatment of animals.

Second, significant animal abuse is deterred when potential abusers know that the Animal Welfare Act's enforcement arm exists and acts swiftly. Only with a vigilant enforcement division can we be assured that the Animal Welfare Act is respected and observed. Enforcement also can prevent problems which may require costly litigation and hours of agency time later on.

Third, considerable federal money and thousands of hours of research time, and countless animal lives can be saved if the Information Service at the National Agricultural Library is adequately funded to accomplish its purposes of making information on alternatives available and reducing duplicative experiments. The requested $750,000 for the Information Service is needed to hire and train more competent staff, create and improve the database and its functions, better serve the public, and acquire new materials such as journals and documents. It is important that these valuable monies be used to advance information gathering and sharing for laboratory research, as intended in the 1985 law, and not for other questionable uses.

Finally, a reinterpretation in policy recently has been put forward by APHIS which needs to be implemented with funds from the requested $10 million in appropriations. On February 16, 1988 in a letter to Senator Cranston, Acting Administrator James Glosser said that APHIS had "determined that the current statutes and regulations give us the authority to include farm animals used in biomedical research under the protections of the AWA. Thus, we have begun the necessary actions to assure the humane care and treatment of farm animals intended for use in research facilities."

This new policy decision begins to reverse a long-standing discrepancy between the statutorily mandated scope of coverage of the Animal Welfare Act and APHIS's more narrow and exclusionary regulations. In short, the statute clearly states that all warm-blooded animals used in research, testing, experimentation, or exhibition purposes, so long as those uses are non-agricultural, that is, do not affect production of food or fiber, are protected by the Act. The operative discrimination factor is how, or for what purpose, any warm-blooded animal is used. Instead, APHIS has written regulations which exclude animals from coverage based not on use but on species. For 18 years now, all farm animals, birds, rats and mice, and horses have not been extended the basic protections of adequate food, shelter, and humane handling merely because APHIS decided that these species were not within the scope of the law.

This determination seemed especially ludicrous to the ASPCA a few years ago when the unicorn-goat, the big-top feature that year of the Ringling Brothers' Barnum and Baily Circus, was deemed by APHIS to be a goat, a farm animal. The mandate of the Animal Welfare Act, that any warm-blooded animal used in exhibitions such as circuses must have humane treatment and the attention of APHIS where violations occur, was not the mandate APHIS followed. Their determination that any farm animal, no matter how that animal is being used, prevailed. The unicorn did not merit protection of the Act, APHIS told the ASPCA.

Although the letter to Senator Cranston does not say that APHIS is amending its regulations to comply completely with the statute, this first step toward reducing the discrepancy between the intention of Congress in 1970 and the actions of APHIS since that time is welcome. Farm animals used in non-agricultural research, testing, experimentation, and exhibition should be protected and APHIS needs to act quickly and decisively to implement this correction.

Implementation will require the Animal Care staff to inform institutional animal committees, veterinarian inspectors, medical officers, compliance and enforcement officers, and animal health technicians about the change in coverage. All research facilities at colleges, universities, diagnostic laboratories, pharmaceutical firms, cosmetic-testing firms, state-owned clinics, privately-owned medical facilities, and hospitals will need to be apprised of the change. These facilities will need to include reports and figures about farm-type animals used in their biomedical research in annual reports of research facilities submitted each December to APHIS.

Four weeks ago eighteen animal protection groups joined together to send a letter to Acting Administrator Glosser thanking him and APHIS for this first movement toward honoring the spirit as well as the letter of the law. Those organizations also urged APHIS to continue in this direction and recognize that the Animal Welfare Act gives protection to:

- all farm animals used in all non-agricultural research, not only biomedical research;
- all farm animals used in non-agricultural exhibitons such as circuses and roadside attractions;

- all warm-blooded animals including birds, rats and mice, and horses used in non-agricultural research, testing, experiments, and exhibits.

In light of this specific change, we request that this subcommittee urge APHIS to continue to align their regulatory policy with the 1970 statute and to up-date the agency regulations immediately.

On behalf of the ASPCA's constituency I would like to request that this subcommittee recommend an appropriation of $10,000,000 for the enforcement of the Animal Welfare Act, of which approximately $750,000 would be used to continue funding of the Information Service at the National Agricultural Library. A small but significant portion of that funding would go to implement APHIS's expanded scope of protection for farm animals used in non-agricultural research, testing, experimentation and exhibition. This relatively modest appropriation would reassure the American public that the humane treatment of animals is indeed a priority of this Congress.

## AMERICAN FARM BUREAU FEDERATION

### STATEMENT OF GRACE ELLEN RICE, ASSOCIATE DIRECTOR, WASHINGTON OFFICE

Senator **BURDICK**. Our next witness is Grace Ellen Rice, associate director, American Farm Bureau Federation.

Welcome to the committee.

Ms. **RICE**. Thank you. Good morning, Mr. Chairman. Before proceeding with our statement, I would like to tell you that the policy and the recommendations that we present to you today are based upon the recommendations, and the policy developed by our producer members at the county, State and national levels. They are supplemented, in part, by recommendations from our 18 or 19 different commodity advisory committee groups. So that is where this all issues from.

The first thing I would like to do this morning is to give you an overview of the Farm Bureau's budget policy, which I know that you have heard before. Basically, we are supporting the freeze in Federal spending at the previous year's appropriations level with the exception of interest payments on the Federal debt.

We believe that if any spending cuts become necessary that they should be applied in all programs and agencies, because without equal application of these cuts, that means that other areas, the discretionary programs, including many USDA programs that affect producers, would have to bear a disproportionate burden. That is something that we do object to.

I would like to proceed with specific comments on two or three different areas. The first of those will be APHIS. I know you have already heard from some of the other witnesses about these programs, but the one I would like to highlight right now is the animal damage control program. The budget for ADC has been recommended for cuts in 1989 from $24 million in 1988 to $13 million in 1989. We believe that this reduction is unwise, and we would ask the subcommittee to consider restoring that funding to the 1988 level.

Let me give you some statistics that bear out our concern about the reduction in Federal spending for this. The losses that we face in terms of crops and livestock are staggering. A 1974 study by the

USDA's Economic Research Service pointed out that in that year, 11 percent of the lambs born in 15 western States and 3.4 percent of adult sheep were lost to predators, primarily coyotes. Although these figures represented average losses for 15 States, losses in individual States ranged from 1.7 percent in Nebraska to 29 percent in Nevada.

On individual ranches, some sheep producers experienced losses of 50 percent or more. We believe that this represented direct economic losses of around $38 million that year. Of course, these figures don't take into account the fact that many of these animals were lost simply because they were separated from their mothers, who also may have been killed by attacking predators.

In addition to the sheep, we give you an example concerning calves. ERS, in 1977, estimated that 115,000 calves worth $20 million were lost to Coyotes. Other losses include goats, poultry, pigs and farm pets. Total losses from predators could range as high as $250 million per year. This has resulted in a significant economic loss to our livestock producers.

But the problem, obviously, is not limited to livestock. There are tremendous problems in the crop area. If you look at a 1981 survey conducted by the U.S. Fish and Wildlife Service relating strictly to corn losses, the losses to birds that year were 12 million bushels worth over $31 million or that is 43 cents per acre. Similar losses are recorded for some of the other feed grain crops: wheat, sunflowers and milo.

These losses, we believe, represent a significant and controllable cost to producers. It relates to their efficiency of production and their ability to stay in business and the difference between profits and loss in any given year. We believe that APHIS can help us in this profit area.

In addition to the cuts in the ADC, I would mention quickly five or six other programs which our members have told us are quite important. The brucellosis area. We believe that brucellosis can, in fact, be eliminated within the next 5 years. The USDA has been conducting a 5-year study. They are now moving into their fourth year of this study. We believe that if we can continue the funding and at least keep it at the 1988 level, we will stand a better chance for eradication within 5 years.

The boll weevil program; imported fire ants—that, of course, is a big problem for livestock producers and people who live primarily in the Southern part of the United States.

Noxious weeds and pseudorabies are also very important items to our producers. We acknowledge that as these program's goals are accomplished, funding can be reduced, but we are not convinced that we have yet achieved the goals of these programs and we, with regard to all of these, would ask that you restore them to the 1988 funding level.

We would say that we are very pleased to see an increase or at least the addition of the new budget item for the Africanized honey bee. Two million dollars has been recommended for that.

Just a brief comment to you about international programs. We noted, at least in the USDA budget summary, that there is a reduction in short-term export credit guarantees from $5 billion down to $3 billion. We are suggesting that the subcommittee might consider reallocating at least $2 billion to other export programs such as export enhancement in the Foreign Agricultural Service.

To conclude and to summarize, I would just say we are well aware that agriculture has been criticized in recent years for the growth of spending in that area, but we believe that the 1985 farm bill is working; that the trend line is now down for farm price supports; and we believe that this will continue over the life of the farm bill.

We, obviously, have not mentioned a good many other items in the USDA budget, but that is not to say that we are not concerned about soil and water conservation, inspection services or certainly the need for adequate research in extension. We do urge your careful consideration of these issues, Mr. Chairman.

Senator BURDICK. Thank you.

You mentioned predators. Against what predators do you think we should direct our resources more fully?

Ms. RICE. Based on the information that I have picked up from our members, I think probably coyotes are probably one of the biggest problems, because they are not confined to Western or upper Midwestern States. It is a problem that we have here in Virginia, in Maryland, so I would say that they seem to be the most prevalent predator.

I would also say that deer, in many areas, are problems for crops. The same is true for blackbirds; they are all over. That just means that you have got to deal with them regardless of where they are. I would say in terms of livestock it is primarily coyotes; for crops it has been deer, blackbirds, that sort of thing.

Senator BURDICK. In your conclusion, you note the importance of preserving our natural resources. Do you support the Administration's budget request for the CRP?

Ms. RICE. Yes, sir, we support an expansion of the Conservation Reserve Program.

Senator BURDICK. Do you support the accompanying cutback in the additional technical assistance projects?

Ms. RICE. In the technical assistance projects?

Senator BURDICK. The cuts?

Ms. RICE. The cutbacks in those? No, sir, we would recommend that they be brought back up to the 1988 level. We recognize that there has got to be some reallocation there in the Conservation Reserve Program.

Senator BURDICK. The Administration gives us this two-part situation: Increase the support for CRP but cut back on the technical assistance projects. Do I understand your answer to be that you don't care to cut back on the assistance projects?

Ms. RICE. That is correct.

Senator BURDICK. I think that is all I have in mind. Thank you very much.

Ms. RICE. Thank you, Mr. Burdick.

[The statement follows:]

## STATEMENT OF GRACE ELLEN RICE

The American Farm Bureau Federation is the nation's largest general farm organization with a membership of over 3.6 million families in 49 states and Puerto Rico. Farm Bureau members produce almost every type of commodity grown commercially in this country. Our policy is developed by the producer members at the county, state and national levels of the organization. The recommendations of Farm Bureau's Commodity Advisory Committees supplement Farm Bureau policy and, in part, form the basis for our position on funding levels for specific USDA programs.

Farm Bureau is pleased to appear before the Subcommittee to offer comments on the FY 1989 USDA budget. In general, the state of American agriculture is improved over last year as domestic and world demand have continued to increase and excess supplies are being reduced. The 1985 farm bill is working toward its goals of achieving export growth, stocks reduction, and income support as agriculture moves toward a market orientation. Given this background of our general satisfaction with the farm bill and recognizing the constraints imposed by the budget summit agreement last fall, our comments will be brief.

### OVERVIEW OF FARM BUREAU'S BUDGET POLICY

Farm Bureau's general position on the budget has remained virtually unchanged over the years. We support a freeze in total federal spending at the previous year's appropriations level with the exception of interest payments on the national debt. Spending restraint, rather than tax increases, must be imposed to balance the budget. Spending cuts must be applied in all programs and agencies. Without equal application of spending cuts in every budget function, including defense and entitlements, discretionary spending, which includes many USDA programs of benefit to agricultural producers, will have to bear a disproportionate share of spending cuts.

### COMMENTS ON SPECIFIC USDA BUDGET ITEMS

#### Animal and Plant Health Inspection Service (APHIS)

The protection of crops and livestock is the major objective of APHIS, and we are concerned that proposed reductions in some of its programs will retard the agency's progress in protecting commodities and livestock.

For example, the budget of the Animal Damage Control (ADC) program will be reduced from $24 million in FY 1988 to $13 million in FY 1989. We believe this reduction is unwise and ask the Subcommittee to restore funding to the FY 1988 level.

Losses of agricultural crops and livestock to wildlife pests are a major concern to a broad range of Farm Bureau producers. AFBF has been involved with the Animal Damage Control program at several different levels for many years. We strongly supported the transfer of the ADC responsibility from the Fish and Wildlife Service to USDA in 1985.

A strong Animal Damage Control program is essential to American agriculture. Crop and livestock losses caused by agricultural pests and predators are staggering. A study by the Department of Agriculture's Economic Research Service estimates that in 1974, 11 percent of the lambs born in 15 Western states and 3.4 percent of adult sheep were lost to predators, primarily coyotes. Although these figures represent average losses for 15 states, losses in individual states ranged from 1.7 percent in Nebraska to 29 percent in Nevada. On individual ranches, some sheep producers have experienced losses of 50 percent or more. This represents direct economic losses to sheep ranchers of nearly $38 million. These estimates do not take into account additional losses which occur from the separation of sheep and lambs from their flock by reason of attacking predators and the resulting deaths of those sheep and lambs.

In addition to sheep, predators also kill other livestock. The Economic Research Service estimated that 115,000 calves worth $20 million were lost to coyotes in 1977. Other losses of livestock such as goats, poultry, pigs and farm pets to predators are regularly reported as well. Total losses to the livestock industry due to depredation have been estimated to be as high as $250 million per year and therefore resulting in reduced income to livestock producers.

Livestock losses to predators are only part of agriculture's animal damage problem. When compared to crop losses, livestock losses are small. A U.S. Fish and Wildlife survey estimated that in 1981, corn losses to birds were 12.0 million bushels worth $31.2 million or 43 cents per acre. This survey considered only corn. Similar losses from birds are inflicted on other small grains such as wheat, barley, sorghum, sunflowers and milo. Deer, waterfowl, elk beaver and other rodents account for hundreds of millions in additional crop damage.

Although no comprehensive national data is currently available on crop and livestock losses to predators, it is not unreasonable to estimate losses from all predator species at $1 billion per year. With total net farm income in the $40-45 billion range, these losses represent a controllable cost to agricultural production of great significance. At a time when many farmers and ranchers must improve efficiency of production to stay in business, it is very possible that our ability to control these losses could make the difference between a profitable and unprofitable farm operation and an agricultural producer's ability to survive.

The 1931 Animal Damage Control Act was passed in response to a situation where agricultural losses from depredation and predators were high, and where agriculture was already suffering from low prices. Those same conditions exist in 1988. We urge USDA to move expeditiously to remedy the problems of rampant depredation and consequent economic losses to America's agricultural producers who have been rendered helpless by government regulations in protecting their crops and livestock. We are anxious to work with USDA to achieve effective pest and predator control.

In addition to the cuts in the Animal Damage Control Program, we question the reductions in these APHIS items: Brucellosis (-$9.8 million to a level of $55.8 million), Boll Weevil (-$11.9 million to a level of $0.2 million), Imported Fire Ant (-$5 million to a level of $0), Noxious Weeds (-$0.4 million to a level of $0), Golden Nematode (-$0.1 million to a level of $0), and Pseudorabies (-$1.4 million to a level of $1 million). While we recognize the need to reduce funding as program goals are accomplished, we question whether the goals of these particular programs have been achieved to such an extent that these cuts are warranted. We encourage the Subcommittee to restore funding for these items to the FY 1988 level. With regard to the Africanized Honey Bee, we are pleased that USDA has recognized the urgency of this matter and requested $2 million for this growing problem.

## International Programs

The program level for short term export credit guarantees has been reduced from $5 billion to $3 billion in FY 1989. USDA notes that this reduction has been proposed because actual levels of participation in recent years has not reached the maximum. We encourage the reallocation of this funding to other programs within the international program area such as the Foreign Agriculture Service so that our export programs and foreign market development will be strengthened, particularly during this time of increased protectionist sentiment among some of our trading partners. It is our hope that this sentiment can be alleviated during the Multilateral Trade Negotiations.

Conclusion

Agriculture has been criticized in recent months for the growth of its budget in proportion to the total federal budget. We acknowledged in our statement to the Subcommittee last year that the initial cost of the 1985 farm bill would be significantly beyond the original budget projections. However, the farm program costs are now headed down and hopefully will continue the trend as the 1985 farm bill matures. It is working, and we continue to oppose substantive changes to the Act.

In addition to commodity programs, international programs and marketing and inspection, farmers and ranchers recognize the importance of preserving our natural resources of soil and water and the need for adequate research and education programs. We urge the Subcommittee's careful study of the USDA's budget request for these areas.

Mr. Chairman, we appreciate the Subcommittee's consideration of our comments and the work that the Subcommittee does to enhance the future of production agriculture in this country.

Thank you.

## AMERICAN HOME SEWING ASSOCIATION

### STATEMENT OF LEONARD ENNIS, EXECUTIVE VICE PRESIDENT

### ACCOMPANIED BY JOHN CHWAT, CHWAT/WEIGEND ASSOCIATES

Senator BURDICK. Our next witness will be Leonard Ennis, executive vice president of the American Home Sewing Association.

Mr. ENNIS. Mr. Chairman and members of the subcommittee, I am Leonard Ennis, executive vice president of the American Home Sewing Association. I am accompanied by John Chwat, our Washington Representative. I am appearing before you today on behalf of the 600 corporate and retail members of the Association regarding the U.S. Department of Agriculture's Extension Service fiscal year 1989 funding request.

Mr. Chairman, our industry works cooperatively with the USDA's Extension Service and their clothing and textile specialists on sewing education programs serving hundreds of thousands of citizens around the country. These Extension Service education programs are critical to the sewing and textile industries, and I meet regularly with Myron Garsworth, who is the Administrator of the Extension Service, whom, as you know, is from North Dakota.

Mr. Chairman, farm women across rural America, where farmers have been frustrated for years by sharply fluctuating income, are turning to entrepreneurships, creating small businesses, mostly centered around sewing. The American Home Sewing Association supports this type of sewing skill expansion in rural America.

Recognizing this educational need, our association took the first step this year to implement a joint project with the USDA's Extension Service involving private and public sector funding. Our industry has supported a sewing education program designed to train and assist the sewing entrepreneur in establishing a profitable home-based business. We targeted the State of Mississippi for the pilot project, since it has the lowest per capita income, about $9,552, of any State and an unemployment rate of 11.25 percent.

This current economic situation in Mississippi indicates a real need for such an entrepreneurship course and, therefore, provides the perfect testing ground. I am proud to say that the project to date has been a great success. The response to the workshops was overwhelming. Over 500 applications were received from 60 out of a total of 82 counties in Mississippi. Twenty participants were selected for each of the four workshop locations, for a total of 80 participants and two additional workshops are being scheduled for the next 2 months.

In addition to our own funding, our association company members have contributed sewing machines, notions, fabrics, publications, and other industry products to the project. The American Home Sewing Association [USDA-ES] pilot project, does end on September 30, 1988. We want to see it continued and expanded around the country. The AHSA has specific recommendations to expand this project nationwide.

In regard to the fiscal year 1989 USDA Extension Service budget now being considered by the Congress, the ASHA recommends that the subcommittee support the following actions: One, full funding for the Extension Service at the same level appropriated by the Congress last year; no reductions in staffing programs or funds, especially in the Smith-Lever 3(d) area.

Two, insert a directive and report language to the Extension Service that they not eliminate clothing and textile specialists and their clothing and textile individual State programs around the country.

Three, appropriate the Administration's fiscal year 1989 request for $10 million in payments for priority initiatives under Section 3(d) of the Act and $10 million in payments for agriculture competitiveness and profitability, also under Section 3(d).

In addition, the AHSA has requested the subcommittee, in allotting the $20 million mentioned above, direct the USDA dedicate in the Section 3(d) programs mentioned before a minimum fixed amount of $250,000 for clothing and textile sewing as a business education program based on the Mississippi model.

This program would be nationwide, and we in the AHSA would be pleased to support its implementation. We believe that the AHSA-USDA Mississippi pilot project incorporates two of the Departments national initiatives to be implemented by the Extension Service in their $20 million Section 3(d) project.

These categories include: Family and economic well-being with Extension goals to help families improve their financial stability and to teach young families and the working poor to remain self sufficient; and two, building human capital, whose extension goal is to develop entrepreneurial skill.

For example, Mr. Chairman, the late Dr. Greenwood, Former Administrator of the Extension Service, had provided us with a report three years ago entitled, "The National Accomplishment Reporting System" for 20 States involved in the Extension Service clothing and textile project. This project detailed 160,445 participants who produced an estimated net value of products worth $6.7 million. If all 50 States had the same type of Extension courses and number of participants, the estimate net value of products made would be $16.8 million.

If all 50 States and their participants were able to sell their sewing products made at home, the total tax revenue generated for the Federal government would equal approximately $3.3 million. A copy of the State-by-State list of this report is also attached to my testimony.

Isn't it good government policy to spend one-quarter of $1 million on a program which will generate millions of taxpayer dollars into the Treasury? The American Home Sewing Association thinks it is, and we urge your support for including it in the fiscal year 1989 agriculture appropriations bill. Thank you.

Senator BURDICK. Thank you very much. Certainly, rural communities will require the development of human resources that remain viable. The Association is doing a good job to make this possible. I have one question for you. How many projects, similar to your Mississippi pilot project, could be initiated with $250,000 a year?

Mr. ENNIS. We believe the $250,000 could act as good seed money to start projects in at least five or six additional States similar to Mississippi, maybe even more than that, depending on how much the States want to contribute.

In the case of Mississippi, the State did contribute quite a good sum in addition to the Federal funds and our own funds. So it was really a three-part program, State, Federal and private.

Senator BURDICK. There are five or six in Mississippi, there must be quite a few in other States, if that is the case.

Mr. ENNIS. What is that?

Senator BURDICK. If there are five or six in Mississippi, there must be quite a few in other States, too, to qualify for something like this.

Mr. ENNIS. Yes.

Senator BURDICK. Thank you.

Mr. ENNIS. Thank you.

[The statement follows:]

## STATEMENT OF LEONARD ENNIS

Mr. Chairman and Members of the Subcommittee, I am Leonard Ennis, Executive Vice President of the American Home Sewing Association. I am appearing before you today on behalf of the 600 corporate and retail members of the association regarding the U.S. Department of Agriculture's Extension Service, Fiscal Year 1989 funding request.

Our association is the only organization which represents the entire home sewing industry in the United States, including such areas as fabrics, fibers, patterns, notions, trimmings, sewing machine manufacturing, retailing, wholesaling and publishing. Today the sewing industry generates over $3.5 billion in sales annually through 20,000 retail stores serving over 40 million home sewing consumers. In addition, over 40,000 educators, junior and senior high school teachers, college professors, extension home economists and retail educators are actively engaged in sewing skill development.

All of these businesses and all of these people -- manufacturers, wholesalers, retailers, educators and consumers -- are the beneficiaries of educational programs that have taught sewing skills to millions of Americans and which, in turn, have created job opportunities for them and have enhanced the quality of their family life.

Mr. Chairman, our industry works cooperatively with the USDA's, Extension Service, and their clothing and textile specialists on sewing education programs serving hundreds of thousands of citizens around the country. These Extension Service education programs are critical to the sewing and textile industries.

While clothing and textiles represent a modest portion of the existing Extension Service education programs, clothing is a basic necessity of life, and therefore, sewing and clothing - related programs take on an economic importance to our society that far exceeds that of other desirable but less fundamental programs. Sewing skills enable people to lower their expenses for clothing and to obtain income through utilization of their sewing skills by performing part- or full-time sewing related work. People do not need extensive facilities or equipment to make clothes. To illustrate this point, Mr. Chairman, farm women across rural America, where farmers have been frustrated by years of sharply fluctuating income, are turning to entrepreneurship, creating small businesses mostly centered around sewing. As reported in the January 3, 1988 New York Times Business section, examples of this activity are numerous:

- In Clarinda, Iowa Bertha Turner, Jean Negley and Julie Lisle started using other farm women to finish jogging suits. Today their company, Bordeaux Inc., has emerged as one of the Midwest's largest farm-based enterprises, with 165 employees, two factories, stores in New Orleans; Kansas City, Missouri, St. Louis and Miami and an annual gross of about $3 million.

- In Orleans, Nebraska Betty Streff took over a spare bedroom in her farmhouse to begin crafting stuffed animals, quilts and wall decorations. Now her company, Apple Kays, employs 45 women, ships nationwide and annually grosses about $300,000.

- In Gibbon, Nebraska Susan Winchester started Sweeter Measures, a mail-order company that makes clothing for large-size women. Today she employs six local women and estimates her gross sales for 1987 at $100,000.

- In Loomis, Nebraska Betty Isaacson started making and selling wood-and-fabric home decorations on her farm. Her company Betty Bobbins, Inc., has 25 full-time and 15-part time employees who work in a new 2,800-square-foot building set on the Isaacson land. It grossed about $1 million last year in sales to gift and department stores.

The AHSA, which incidentally has officially changed its name to the Creative Sewing and Crafts Association (CSCA), supports this type of sewing skill expansion in rural America.

Accordingly, since sewing is a learned skill, people need to be taught the basic skills necessary to transfer design concepts and fabric into useful products either for their own use or for sale to others. Given the problem of high unemployment in some areas, the importance of providing programs that will service the specific clothing needs of targeted population groups is critical.

Recognizing this educational need our association took the first step this year to implement a joint project with the USDA's Extension Service involving private and public sector funding. Our industry has supported a sewing education program designed to train and assist the sewing entrepreneuer in establishing a profitable home-based business. We targeted the State of Mississippi for the pilot project, since it has the lowest per capital income ($9,552) of any state, and an unemployment rate of 11.25 percent. This current economic situation in Mississippi indicates a real need for such an entrepreneurship course and therefore provides the perfect "testing ground." I am proud to say that the project, to date, has been a success.

Promotion of the Mississippi-AHSA/USDA sewing workshops began November 15, 1987. The County Extension Home Economists advertised the "Sewing As A Business" workshops through news articles, radio programs, newsletters, home sewing retailers, and person contacts. The deadline for participants to submit applications was January 15, 1988.

The response to the workshops was overwhelming. Over 500 applications were received from 60 (out of 82) counties in Mississippi. Twenty participants were selected for each of the four workshop locations (for a total of 80 participants).

At this time, two of the four workshops have been completed. Attached at the end of my testimony are evaluations completed by the participants; a recruiting brochure for the workshops; and selected Mississippi news clippings on the project.

Support and cooperation from the home sewing industry in terms of equipment and products has been excellent. The following is a list of companies that have contributed machines, fabrics, publications, and/or products to the project:

* B. Black & Sons
* Butterick
* Charter Fabric
* Coats & Clark
* Crown Textile Co.,/Armo Division
* Dan River
* Dritz Corporation
* Elna, Inc.
* EZ International
* Fabricnews
* Fiskars
* Freudenberg Nonwovens
* Forstmann and Company
* Gingher, Inc.
* Guilford Mills, Inc.
* Hancock Textiles
* Hi-Fashion Fabrics
* Homesewing Trade News
* Ismda, Inc.
* Juki Industries of America
* June Taylor, Inc.
* Logantex, Inc.
* Majestic Mills, Inc.
* Manes Organization
* Marcus Brothers
* Monarch Counter Fabrics
* N. Erlanger Blumgart
* Nancy's Notions
* PJS Publications
* Pago Fabrics
* Palmer/Pletsch
* Pendleton Woolen Mills
* Pentapco, Inc.
* Peter Pan Fabrics
* Pfaff American Sales Corp.
* Sew Easy Lingerie
* Sew It Seams
* Sharon Lewis
* Simplicity Patterns
* Singer Sewing Co.
* Speech Stitch, Inc.
* Springs Industries, Inc.
* Stacy Industries
* Sussman
* Swiss-Bernia, Inc.
* Swiss-Metrosene
* The Taunton Press
* The New Home Sewing Machine Company
* Tootal American
* Update Newsletters

- Marks International
- Mary Carter Exotic Silks
- McCall Patterns
- Viking/White Sewing Machine Co.
- Wamsutta OTC
- Westwood Retail Fabrics

The American Home Sewing Association/ES-USDA pilot project is doing exceptionally well, however, it does end on September 30, 1988. We want to see it continued and expanded around the country. The AHSA has specific recommendations to expand this project nationwide.

In regards to the Fiscal Year 1989 USDA, Extension Service budget now being considered by the Congress. The AHSA recommends that the subcommittee support the following actions:

1) Full funding for the Extension Service at the same level appropriated by the Congress last year. No reductions in staffing, programs or funds, especially in the Smith-lever 3(d) area;

2) Insert a directive in Report language to the Extension Service that they not eliminate clothing and textile specialists and their clothing and textile individual state programs around the country;

3) Appropriate the Administration's Fiscal Year 1989 request for $10 million in payments for Priority Initiatives under Section 3(d) of the Act and $10 million in payments for Agriculture Competitiveness and Profitability, also under Section 3(d).

In addition, the AHSA requests that the Subcommittee in alloting the $20 million mentioned above:

4) Direct the USDA dedicate in the Section 3(d) programs mentioned above, a minimum, fixed amount of $250,000, for a clothing and textile, sewing as a business, education program based on the Mississippi model. This program would be nationwide and we in the AHSA would be pleased to support its implementation.

We believe that the AHSA/USDA's Mississippi Pilot Project incorporates two of the Department's national initiatives to be implemented by the Extension Service in their $20 million, Section 3(d) project, Fiscal Year 1989 request:

These categories include:

1) Family and Economic Well Being, whose Extension goal is to "help families improve their financial stability" and to "teach young families and the working poor... to remain self-sufficient;" and
2) Building Human Capital, whose extension goal is to "develop entrepreneurial skills."

Our Sewing as a Business joint project implements these two Extension goals.

Mr. Chairman, without the support of this Subcommittee for our Pilot Project, I am afraid that this revenue producing program for the government will not implement at the state level, nor continued at the federal level. Funding will not be found and other programs will push us aside. I mention "revenue producing" in that we are convinced that this clothing and textile program will generate tax revenue for the federal government.

For example, Mr. Chairman, the late, Dr. Greenwood, former Administrator, Extension Service has provided us with a report three years ago, entitled a National Accomplishment Reporting System for 20 states involved in the Extension Service Clothing & Textile projects. This report detailed 163,445 participants who produced an estimated net value of products worth $6.7 million. If all 50 states had the same type of Extension courses and number of participants; the estimated net value of products made would be $16.8 million. If all 50 states and their participants were able to sell their sewing products made at home the total tax revenue generated for the federal government would equal approximately $3.3 million. A copy of the state-by-state list for this report is also attached to my testimony.

Isn't it good government policy to spend $250,000 on a program which will generate millions of taxpayer dollars into the treasury? The AHSA thinks it is and we urge your support for including it in the Fiscal Year 1989 Agriculture Appropriations bill.

## SUMMARY

In regards to the Fiscal Year 1989 USDA, Extension Service budget now being considered by the Congress. The AHSA recommends that the subcommittee support the following actions:

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☐ Are you an expert at sewing?

☐ Would you like to make extra income at home?

☐ Do your friends often ask you for sewing advice?

☐ Do you enjoy sharing your sewing knowledge?

☐ Do you want to learn about the latest trends in home sewing?

If your answer is YES, then this workshop is for you.

"Sewing As A Business" is a workshop designed for those who have already established, or are interested in establishing, a home-based sewing business. The business may be sewing for profit and/or teaching sewing for profit.

The workshop will focus on developing skills to make your business professional and profitable.

## Workshops Offered

Gulfport — February 8-12, 1988
Jackson — March 7-11, 1988
Greenville — April 25-29, 1988
Tupelo — May 9-13, 1988

*Sewing as a*
**BUSINESS**
*Sewing Professionals*

**A five-day intensive**
**WORKSHOP**
**offered for**
**home-based sewing businesses**

Sponsored by

Mississippi Cooperative Extension Service
American Home Sewing Association
Extension Service — USDA

# Agenda

## Day 1

BUSINESS AWARENESS:
Learn the basic skills for turning your sewing talent into a home-based business.

**Topics**

- How and where to obtain money to get started.
- How to protect your business interests.
- How to keep accurate records for the best tax advantages.
- How to legally set up a business in your home.

## Day 2

MARKETING DIRECTIONS:
Learn how to double your income by marketing your talent effectively.

**Topics**

- How to determine what prices to charge for your services.
- How to economically set up a sewing area in your home.
- How to advertise and promote your business.
- How to keep up with the current trends in home sewing.

## Day 3

UPDATE:
Learn about current trends in home sewing, including types, sources, and costs of new equipment and products.

**Demonstrations and exhibits**

- 40 different sewing machines and sergers.
- More than 100 new sewing notions and aids.
- Sources for obtaining sewing notions, business supplies, fabrics, equipment, and professional publications.

## Days 4 and 5

USING NEW TECHNOLOGY:
Hands-on experience using the newest products and equipment.

**Projects for skill development:**

- Using a serger, you will complete a notebook of 20 different samples.
- Using a variety of fabrics and interfacings, you will complete an interfacing reference library to take home for future use.
- Using the Palmer/Pletsch System of Sewing, you will learn the current trends and methods for pattern and garment fit.

# Application for Sewing As A Business Workshop

**Complete application and return to your County Extension Home Economist by January 15, 1988. Workshop space is limited.**

Name ______________________________ Telephone ______________
Mailing Address ________________________ County ______________

1. Do you sew in your home for pay? Yes ____ No ____ If yes, what types of sewing do you do?
   ______________________________________________
2. Do you teach sewing to the public for pay? Yes ____ No ____ If yes, what do you teach? ____
   ______________________________________________
3. How would you rate your sewing skills? Beginner ______ Average ______ Advanced ______
4. What kind of sewing machine do you own? ________ How old is your machine? ________
5. Do you own a serger? Yes ________ No ________ If yes, what kind of serger? ________
   How old is your serger? ______________
6. How do you rate your serger sewing skills? Beginner ______ Average ______ Advanced ______
7. Describe your sewing training, formal and informal. (Examples: high school home economics, vocational-technical, extension sewing workshops, college sewing classes.)
   ______________________________________________
   ______________________________________________
   ______________________________________________
8. Have you participated in business courses, workshops, or seminars? Yes ________ No ________
   If yes, what kind? ______________________________________

I, ______________________________, am willing to commit myself to attend all five days of the Sewing As A Business Workshop.

I understand the workshop will be held in ________________ on ________________
Location Date

I understand there is no workshop fee and all materials will be provided. I will be responsible for my own transportation and lodging and meal expenses.

For more information contact the Mississippi Cooperative Extension Service at 601-325-3085.

* NOTE: These are only preliminary statistics from the first two workshops. A final report will be submitted upon completion of all workshops. *

## Evaluation of the "Sewing As A Business" Workshop

1. As a whole, the workshop was:

   98% excellent
   2% good
   -0- fair
   -0- poor

2. The workshop had:

   2% too much theory and not enough practical
   -0- too much practical and not enough theory
   98% about the right mix of theory and practical

3. The mix of lecture, discussion, and demonstration was:

| | | | |
|---|---|---|---|
| lecture: | -0- too little | 2% too much | 98% the right amount |
| discussion: | 2% too little | -0- too much | 98% the right amount |
| demonstration: | 15% too little | -0- too much | 85% the right amount |

4. The five day workshop was:

-0- too long 25% too short 75% about right

5. I would grade the organization of the workshop as:

100% A -0- B -0- C -0- D -0- F

6. I would grade the location of the workshop as:

93% A 7% B -0- C -0- D -0- F

7. I would grade the building facilities as:

95% A 5% B -0- C -0- D -0- F

8. How worthwhile was this workshop to you as a sewing professional?

100% very worthwhile
-0- somewhat worthwhile
-0- not very worthwhile
-0- a waste of time

9. Can you transfer information from the "Sewing As A Business" workshop to your home-based business?

100% Yes -0- To some extent -0- No

10. Please rate how useful the information in each session was or will be to you: (circle number)

| Day 1 | not useful | | | | very useful | mean score |
|---|---|---|---|---|---|---|
| Home-Based Business and The Law | 1 | 2 | 3 | 4 | 5 | 4.4 |
| Zoning and Licensing | 1 | 2 | 3 | 4 | 5 | 3.8 |
| Double Your Income/Pricing for Profit | 1 | 2 | 3 | 4 | 5 | 4.8 |
| Bank Accounts and Securing Business Loans | 1 | 2 | 3 | 4 | 5 | 4.1 |
| Panel Discussion | 1 | 2 | 3 | 4 | 5 | 4.7 |
| Day 2 | | | | | | |
| Planning Your Sewing Center | 1 | 2 | 3 | 4 | 5 | 4.2 |
| Target Your Market | 1 | 2 | 3 | 4 | 5 | 4.7 |
| Records, Bookkeeping and Taxes | 1 | 2 | 3 | 4 | 5 | 4.4 |
| Advertising and Promotion | 1 | 2 | 3 | 4 | 5 | 4.7 |
| Image: You As A Professional | 1 | 2 | 3 | 4 | 5 | 4.7 |
| Day 3 | | | | | | |
| Introduction of New Equipment | 1 | 2 | 3 | 4 | 5 | 4.8 |
| Introduction of New Products | 1 | 2 | 3 | 4 | 5 | 4.8 |
| Exhibits | 1 | 2 | 3 | 4 | 5 | 4.9 |
| Days 4 and 5 | | | | | | |
| Serger Basics | 1 | 2 | 3 | 4 | 5 | 4.9 |
| Interfacing Reference Library | 1 | 2 | 3 | 4 | 5 | 4.8 |
| Fitting Seminar | 1 | 2 | 3 | 4 | 5 | 4.8 |

11. With 20/20 hindsight, would you participate again if you had the chance?

98% Yes 2% Maybe -0- No

12. **Worth of "Sewing As A Business" Workshop in dollars?**

**$537.89** **(average dollar figure per participant)**

**SELECTED COMMENTS:**

This has been a wonderful experience for me and would be for anyone that wanted to work out of their home in a home-based business.

This workshop has been very valuable to me. I have learned more this week about the business part of sewing.

This workshop has boosted my morale, given me more incentive and determination to be successful in a business of my own.

This was the chance of a lifetime. I have enjoyed it very much. I have learned a lot and I am ready to share (network). I am excited about starting my home-based business and feel as though I have a lot of support. A lot of proof that it works.

Thanks for this opportunity to learn and expand my knowledge of sewing as a business. I feel you have given me a definite push (no shove) in the right directions.

I wish to thank everyone who had a part in planning, financing, and producing this workshop. I really feel honored to have had an opportunity to attend and wish only that everyone who applied could have the same.

Thank you very much for inviting me to participate. It means a lot to me to be able to be creatively self-employed, and this workshop gave me many tools and ideas to be more successful.

This week has been an answer to prayer for guidance in my business and future plans. So many things came up that were good excuses for not coming, but with the Lord's help and my husband's encouragement I came anyway. I leave with fresh enthusiasm, new ideas and the reassurance that I can contribute to my family income in a field that I love! Thank you!

After many years of sewing, I feel that I am able after this workshop to focus on my market and move forward. I have considered teaching; this workshop has supplied me with many different ideas on how to obtain my goal. Everyone was great - thank you for your time and interest.

Thanks for making me aware that I am truly an artist and my potential is great for helping support my family. Beth and Alice are a credit to our State and MCES.

The personnel has been top quality. The presentations excellent. Very informative and enjoyable. I appreciate the opportunity it provided.

This is a great benefit for the home sewing professionals. The people and organizations that sponsored this event should be given their wts. in "solid gold." Everyone has such a professional air and this alone, I think, made us feel "great." Thank you "all".

* NOTE: These are only preliminary statistics from the first two workshops. A final report will be submitted upon completion of all workshops.*

## SEWING AS A BUSINESS WORKSHOP
## BACKGROUND INFORMATION

Age:

-0- 20 and under
7% 21 to 29
27% 30 to 39
30% 40 to 49
27% 50 to 59
9% 60 to 69
-0- 70 and over

Size of town/city you live in:

14% population under 250
12% population 250 - 2,499
12% population 2,500 - 9,999
17% population 10,000 - 24,999
24% population 25,000 - 49,999
21% population 50,000 and over

Highest level of education completed:

2% less than high school graduate
30% high school graduate
48% technical school or some college
18% college graduate
2% graduate school

Approximate total family income per year:

9% under $10,000
11% $10,000 - $14,999
9% $15,000 - $19,999
19% $20,000 - $24,999
11% $25,000 - $30,000
41% over $30,000

Income per year from your sewing business:

15% none
15% under $500
18% $500 - $999
15% $1,000 - $2,999
18% $3,000 - $4,999
10% $5,000 - $6,999
5% $ 7,000 - $ 9,999
-0- $10,000 - $14,999
2% $15,000 - $19,999
2% $20,000 - $24,999
-0- $25,000 - $30,000
-0- over $30,000

Reasons why you are attending the "Sewing As A Business" workshop:

66% increase income
41% start a home-based sewing business
66% improve an existing home-based sewing business
9% other

How did you hear about the "Sewing As A Business" workshop?

30% newspaper
20% fabric store
-0- radio
-0- television
5% magazine
52% Extension Home Economist
25% friend
-0- other

[From the Daily Corinthian, Corinth, Miss., Jan. 8, 1988]

## Home Sewing Class Can Help You Open a Profitable Business

Are you and expert at sewing? Would you like to make extra income at home? Do your friends often ask you for sewing advice? Do you enjoy sharing your sewing information? Do you want to learn about the very latest trends in home sewing?

If your answer is yes to any of these questions then this workshop may be for you.

THE Mississippi Cooperative Extension Service in conjunction with the American Home Sewing Association and the U.S Department of Agriculture Extension Service is sponsoring a five day "Sewing As A Business" workshop. The workshop is designed for those who have already established or are interested in establishing a home-based sewing business. The business may be sewing for profit and/or teaching sewing for profit.

The workshop will focus on developing skills to make your business professional and profitable. In the workshop, you will learn the basic skills for turning your sewing talent into a home-based business. You will also learn how to double your income by marketing your talent effectively. In addition, you will learn all about the most current trends in home sewing including types, sources and costs of new equipment and products.

Topics to be covered include:

- How to determine what prices to charge for your services.
- How to economically set up a sewing area in your home.
- Sources for obtaining sewing notions, business supplies, fabrics, equipment and professional publications.

Each workshop participant will complete an interfacing reference library to take home for future use, using a variety of fabrics and interfacing. You will also complete a notebook of 20 different samples using a new serger/overlock machine.

The "Sewing As A Business," will be held May 4-13 at the Hilton Hotel in Tupelo. For more information and/or application contact county Extension office by January 15.

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[From the Sentinel Star, Grenada, Miss., Mar. 2, 1988]

## Sewing Specialists Hope Business Will Increase in Mississippi After Taking Part in Skillful Workshop

By LINDA S. MOORE

Sewing specialists are hoping professional home sewers in Mississippi will be able to establish businesses, or if already established, double their income after taking part in workshops designed to sharpen their business skills.

The six, five-day "Sewing as a Business" workshops are being held in five state locations.

"I really think they will substantially increase their income — maybe as much as double their income," said Pati Palmer, author of sewing books and a designer for McCalls Pattern Co. Palmer recently assisted in the first workshop in Gulfport, Feb. 8-12.

The Mississippi Cooperative Extension Service is coordinating the business workshops funded by a $76,800 grant from the American

Home Sewing Association and the Extension Service/U.S. Department of Agriculture.

The Mississippi workshops are the first sewing business workshops to be jointly sponsored by the sewing industry and the Extension Service at the federal and state levels.

Out of 87 applicants, only 20 participants could be chosen for the Gulfport workshop. More than 100 people applied for the 20 places for the next workshop to be held March 7-11 in Jackson. Although funds limited the number of spaces available in each workshop, no fee was charged for the pilot workshops.

The other workshops will be in April at Greenville, in May at Tupelo, in July at Mississippi State University and in August at Jackson. The final two workshops were added because of the large participant demand.

Palmer, who is the past president of the National Home Economics in Business Association, credits Mississippi's privilege of hosting the pilot project with the state's clothing and textile leaders' direct efforts.

Dr. Marilynn Purdie, state leader in Extension Home Economics, said testimony before the House Appropriations Committee drew attention to the need for a project in the home sewing area. She said that once the funding became available, Mississippi was one of the few state's who expressed interest in the grant.

"The South has always been strong in terms of the home sewing industry," Purdie said. "The strong expertise on our state level, such as our clothing and textiles specialist (Beth Duncan), contributed to our ability to land the project."

Alice Shinn, project coordinator, said the workshops appeal to those committed to home-based sewing businesses. The participants receive instruction on improving business skills including record keeping and taxes, zoning and licenses, loans, legal considerations, new equipment, targeting markets, promotion and pricing.

"Everybody who participates in the workshops already have the sewing skills needed," Shinn said. "They need to develop their business skills."

The project coordinator said she hopes the workshops will develop a networking system for home sewers in the state to purchase equipment and materials as a group to cut costs. Shinn said the possibility of a referral system could further multiply business [illegible]

## SELECTED 1984 USDA-NATIONAL ACCOMPLISHMENT REPORTING SYSTEM REPORTS ON EXTENSION SERVICE STATE TEXTILE AND CLOTHING PROJECTS

| STATE | TYPE OF EXTENSION COURSE | PARTICIPANTS IN COURSES | ESTIMATED NET VALUE OF PRODUCTS ($) |
|---|---|---|---|
| Kentucky | Clothing Construction and Repair | 39,098 | 2,688,000 |
| Alabama | Clothing Construction | 2,304 | 101,049 |
| Connecticut | Clothing Workshops | 112 | 6,025 |
| Florida | Clothing Construction | 8,858 | 46,773 |
| Georgia | Repair and Alteration | 389 | 3,564 |
| Idaho | Clothing Construction | 3,700 | 80,000 |
| Maryland | Clothing Construction/ Sewing Machine Maintenance | 4,417 | 58,835 |
| Mississippi | Clothing Construction | 350 | 19,000 |
| Missouri | Clothing and Textiles | 15,269 | 1,267,327 |
| Montana | Clothing Construction/ Recycling | 891 | 60,700 |
| Nebraska | Sewing Machine USP and Care | 167 | 5,000 |
| New Jersey | Clothing Construction/Care | 1,570 | 16,434 |
| N. Carolina | Clothing Construction | 4,473 | 77,723 |
| Oklahoma | Clothing Construction and Repair | 325 | 32,297 |
| Puerto Rico | Sewing Techniques | 16,498 | 1,490,000 |
| S. Carolina | Clothing Construction and Repair | 7,018 | 90,106 |
| S. Dakota | Wardrobe Management and Clothing Construction | 5,339 | 255,631 |
| Tennessee | Clothing and Textile | 37,757 | 251,899 |
| Utah | Clothing Construction | 73 | 5,000 |
| Virginia | Clothing and Textiles | 14,837 | 177,444 |
| 20 States | TOTAL | 163,445 | $6,732.807 |

NOTE:
- If all 50 states had the same type of Extension courses and number of participants, the extimated net value of products made would be $16,832,000:
- If all 50 states and their participants were able to sell their sewing products made at home the total tax revenue generated for the federal government would equal around $3,366,400:

- Source for 20 State NARS reports, U.S.D.A., Extension Service

## CONGRESSIONAL WITNESS

## STATEMENT OF HON. J. JAMES EXON, U.S. SENATOR FROM NEBRASKA

**ACCOMPANIED BY:**

**ROB RAUN, MILKWEED RESEARCH PROGRAM, UNIVERSITY OF NEBRASKA**

**HERB KNUDSEN, NATURAL FIBERS CORP., BAY VILLAGE, OH**

Senator BURDICK. Our next witness is Senator Exon from the great State of Nebraska, accompanied by Rob Raun, Milkweed Research Program, University of Nebraska. If I had time, I would relate the story about a football game between the University of Minnesota and the University of Nebraska, but we will have to defer that to a later time. I know it is somewhat embarrassing to my Senator friend, but maybe at some time we will do it. You may proceed.

Senator EXON. Mr. Chairman, thank you very much, and certainly, I would be agreeable to listening to that football story once again. The story that you tell is a true one. I am sure that my colleagues from Nebraska, my distinguished colleagues, have never heard the story, but in the interest of saving time, if it is all right with the chairman, I assure the chairman that I will tell them that story under the Nebraska version, which we will get through almost as well as the way my friend and colleague from North Dakota tells it. It has to do with years ago when Nebraska played a school that was one quite prominent in football, the University of Minnesota. I won't go further than that.

Mr. Chairman, my great friend and colleague, thank you very much for allowing us to come before you today. It is one of the real privileges in the last 10 years of representing Nebraska in the U.S. Senate—the great cooperation and understanding that we have had from you in this whole matter of rural America and agriculture, in particular. I just wanted to salute you, once again, Mr. Chairman, for your outstanding leadership in this particular area and the consideration that you have always given to the interests of Nebraska, which, I think, in most instances, has been parallel with the interests of your great State of North Dakota.

Chairman Burdick and members of the subcommittee, I appreciate very much the opportunity to come before you today. Mr. Chairman, if I could, in the interest of saving time, I would like to have a complete text of my testimony printed in the record and I will, in the interest of time, be glad to summarize at this time, if that is all right with the chairman.

Senator BURDICK. Without objection, your full statement will be made a part of the record, and you may summarize. In fact, it will be appreciated.

Senator EXON. Mr. Chairman, in the coming weeks, you will make decisions affecting many facets of American agriculture. I have submitted for the record a detailed statement. But in the interest of time, I would simply like to summarize my remarks and let you know my thoughts on what kind of investments we should be making in agriculture.

Just yesterday, the University of Nebraska submitted to me a detailed proposal to establish the Nebraska Center for Advanced Technology, NCAT. This proposal combines research in several areas and addresses a major national concern: Our inability to move technology from the laboratory to the marketplace. I believe the University is on the right track. The Federal government can and should play a role in this effort. I will forward more specific comments to the Committee in this regard at a later date.

I also want to reiterate my support for the National Forest Service. The administration has proposed deep cuts in research in the State and private Forest Aid programs. I must oppose these cuts and urge you and the Committee to do likewise.

Graduate studies in agriculture and water quality are also very important to rural America's future. The National Association of State Universities and Land-Grant Colleges has proposed stepped-up efforts in both of these areas. While their suggested funding levels may be difficult to meet, I urge the committee to work toward that end.

The Great Plains Conservation Program has also been targeted for elimination by the Administration. Given the conservation work that must be done in the years to come, I must object. At a minimum, I urge you to fund this program at 1988 levels. When I say "at a minimum," I know that you as chairman and the committee are under great stress and strain today with the constraints of the budget. We know that you will make the wise decisions to use the ever-limited funding for purposes that move rural America forward.

The Agriculture in Transition program has received strong support by this subcommittee in recent years, and we thank you, once again, for that. I do not believe the transition is over, at least yet, and urge the subcommittee to provide $500,000 for the Nebraska Agriculture in Transition program, which has been a model for the Nation.

Finally, I would like to comment on a problem which I know has been of major concern to the chairman. Leafy spurge is a noxious weed which left untreated, can render pasture and pasture land useless for cattle grazing. I urge the Committee to provide $300,000 to the Animal Plant Health Inspection Service for aerial analysis of this problem in Nebraska.

Mr. Chairman, I end my presentation by introducing two very distinguished Nebraskans. The first is Mr. Rob Raun, who has served as the Director of the Department of Agriculture in the State of Nebraska. He is an extremely prominent and well-recognized farmer and farm expert, and he has served for many years on the Board of Regents of the University of Nebraska, where he was the chairman of the Board of Regents.

He, of course, is going to tell you about an alternative crop project that is very exciting, and I am behind this proposal 100 percent. Also joining him is Herb Knudsen, who has just been selected Entrepreneur of the Year, who has done extensive work in bringing this experimental crop into the marketplace, and I know that the chairman will be very interested in hearing that proposal.

So without further ado, I thank you, again, for your consideration, Mr. Chairman, and I would like to request at this time that you call on Mr. Raun for his presentation.

Senator **Burdick**. Thank you. Mr. Raun?

Mr. **Raun**. Thank you, Senator Exon. Mr. Chairman, it is a real pleasure for Herb Knudsen and I to be with you today to testify on behalf of this new crop proposal that we would like to see the Federal Government involved in helping us to support.

This is truly a new crop, and that is the reason we are here. We are concerned about alternative uses for the existing farm products; we are concerned about the development of new crops, because nobody knows better than I, who has been farming for almost 40 years, that we have a chronic agriculture problem associated with overproductive capacity. It does us no good out there in rural America to see idle acres sitting without agribusiness' inputs and without the product of those idle acres going into the local towns to be processed and marketed. The farms are partly idle. The rural communities are partly idle, and it is our objective, as proponents of this new crop, to bring some of those acres back into production with a genuine new crop.

I am traditionally a corn farmer. We had hoped that Ralph Holzfaster, another person who is a producer and is involved in the production of milkweed in the very initial stages could be here also, but he is also a corn farmer. This is corn planting time. I drew the short straw and was designated to come here today, which I am very happy and pleased to do. But you know people in the corn business, when corn planting time comes, you better be out there getting it done. I hope that you will take note of the fact that I am here instead of planting corn, which should be some indication of how important I think this project is and other projects like it.

Let's talk about a new crop. U.S. farmers want to try to solve some of our own problems. We know that we can't solve them all by ourselves, but we would like to try to solve some of our own problems. So Ralph Holzfaster and myself, and Herb Knudsen from the business end are trying to get a new crop started that would truly be a new crop, not in competition with any agricrop that is grown in the United States.

I am not interested as a farmer in pushing out some potato grower or onion grower or lettuce grower, though I know that there are some opportunities in the United States for people not in production of those crops to get into production and do it competitively.

What I am really concerned about is the development of a new crop that will provide a product that can be used industrially that would really contribute to bringing some idle acres back into production, and that is where milkweed comes up.

Milkweed is really not a new crop. I have before me here some bulletins; one I think the Senator might be especially interested in, some work that was done back in the 1940's at North Dakota Agricultural College at Fargo, ND. The title of the bulletin—it is yellow with age—is "Cultivation of Milkweed." So it is not new.

For 250 years people have recognized the milkweed plant as a unique plant, one that has the base fibers in the stem; has a milky sap known sometime as Latex and a floss in the flowered and matured head that people have recognized for years as possibly having some economic use. So over 250 years at various locations around the world, people have tried to find some economic use for the products that the milkweed plant might provide.

The most recent effort was made during World War II, when the Kapok supply was cut from Southeast Asia, and a project was headed up by Michigan State College which was aimed at collecting milkweed floss to replace the Kapok in lifejackets during the war.

There was a good deal of work done at that time, and I have some other bulletins that were done at that time. Up until the present time, nothing else has been accomplished. The present projects started under the direction of Standard of Ohio, a private company, was searching for a replacement for crude oil at the time when the crude oil price was rising steadily. In fact, Herb Knudsen was administrator in charge of that project and found out that crude oil could be derived from the sap of the milkweed plant, but the cost was prohibitively high. So they had to give up on that project, at least for the time being and decided, in fact, to discontinue the project.

But by that time, enough work had been done that the promise of the floss as a marketable product was impressive enough to Herb Knudsen that he decided to carry on with the project and enlisted the support of some people in Nebraska, because it had been determined in the Standard of Ohio project that the Middle West and Nebraska in particular was probably about as good a place to grow milkweed as any.

I know that on my own farm, some of my neighbors have said, "You don't grow corn very well, but you grow weeds in good shape." I thought perhaps a change to milkweed might be appropriate. I say that in jest. A plant is a weed until somebody finds an economic use for it. We think we have found an economic use for the floss of the milkweed plant.

What is it going to take to develop this project? It is going to take, as I pointed out in a statement that has been filed with your Committee, it is going to take a partnership approach. It is going to take producers like Ralph Holzfaster from Paxton, NE, and myself and some others in the early stages who are willing to take the risk that is involved in planting some good acres of irrigated Nebraska land to a crop that most people identify as a pesky weed.

It is going to take agribusiness people, because you have got to have a business set up to contract with the farmers for the production to provide a market development mechanism if we are going to make this thing go. Our proposal is for a research project. The University of Nebraska has become very much interested in this and has made a proposal for a three-way project that would provide input from the University and the State through the University's budget. A team of scientists has been assigned and also an agronomist and a plant pathologist, ag engineering, textiles and other departments of the University of Nebraska will be involved.

It is going to take some private contributions, because we really believe that it is a three-way approach here with State input, with Federal input and with private contributions. Through the University of Nebraska Foundation, we have already gotten a substantial number of private contributions for a research fund to develop this product.

The State government is firmly behind us. As Senator Exon pointed out, I, at one time, was Director of the Nebraska Department of Agriculture. That was from the years 1983 to 1985. You will recall that at that time, farmers were in severe economic distress. The thing I remember most about that position and in the Nebraska Department of Agriculture was the fact that I spent a good part of my time answering letters and answering telephone calls from farmers who were about to lose the land that had been in their families' hands for many generations.

When I left that job to go back to the farm, and I was very happy to get back to the farm—I really didn't want to leave the farm in the first place because I love the farm—I made up my mind that all the spare time that I had the rest of my productive years was going to be spent in trying to find some new crops that would add to the potential of prosperity in the Middle West.

Thus comes the milkweed project. As I have said before, we have the firm support of the State Department of Agriculture and its present leadership, the Governor of the State of Nebraska and the Department of Economic Development, because they all recognize the potential that is here.

Those are four of the members of the partnership, producers, agribusiness, the University of Nebraska and of course, perhaps, other land-grant colleges if this thing continues to move forward. State government has to have a role to play, and then we finally come to the Federal government. As I pointed out already, during World War II, Michigan State headed up the project and the bulletins that resulted from that effort. I have a copy of them here. There is one from USDA called "The Summary of the Literature on Milkweeds and Their Utilization" printed in 1943, an awful lot of interesting information in there.

North Dakota State had a role to play in that; Iowa State has done some research in the past. This was at a time when the technology was not nearly as well developed as it is now. The product that we hope to put on the market—to begin with—has three potential uses. The first one would be for insulation, personal insulation. It is a lower volume market. It is a high value market. Because of the nature of the milkweed floss having a single cell, hollow fiber with air trapped inside it and a natural wax coating, it lends itself to the use for insulation.

In fact, it is a very superior insulation. We have here a sample of material that Mr. Knudsen will speak about in a minute and give you a sample of it and tell you how outstanding that is as insulation in certain items. There is a possibility for cotton plants. USDA has already done some research at its New Orleans lab in 1983, of blending cotton with milkweed, and it shows some very promising potential. There is, in fact, some additional research going on in that area at the present time.

We are making a very modest proposal for support. In these days when everybody thinks in terms of millions of dollars, we are talking about $75,000 of Federal support the first year to be followed with two years at the $80,000 level. Some people would say, "That's so small that you shouldn't even be here talking about it," but we think we should. We believe in Nebraska, as with many mid-western States, in getting a lot of good out of a few dollars.

We would hope that the Federal government will participate in this partnership and go along with us, and furthermore, we hope that we will be successful at the USDA in getting an ASCS ruling that we can grow these milkweeds for the years when it is officially an experimental crop on diverted acres. We have made a contact in that regard with the Deputy Administrator at the ASCS and, frankly, he has turned us down, saying he is going to turn all such requests down.

We hope that that can be reconsidered, because it is very essential. It wouldn't cost the government any money, and it would contribute a whole lot to us moving along with this project and, hopefully, developing it to its full potential.

I would like to turn this over to Mr. Knudsen to show you a couple of possible marketable items that we have developed.

Senator **Burdick**. OK.

Senator **Exon**. Before Mr. Knudsen testifies, Mr. Chairman, if I might just add a word, I can see the Chairman's eyes light up. What is so unique about this program is, as so well described by my friend from Nebraska, is that if this works, and there is every indication that it would, Mr. Knudsen is going to go into a little bit more than the industrial application, which is, without that, there is no use to produce milkweed.

So it looks like a viable program. I think we would not have difficulty in changing around the Department of Agriculture if this works out. What is so unique about this, as the chairman knows so well with the continued stress that we have in rural America today, isn't it sad that we can't find some crop that is not in competition with other crops that could be planted on diverted acres? I can't imagine why anybody in the Department of Agriculture would be against that, because if we can find some diverted acres, crops like this, then it might be taking the place in the future of the subsidies that are going to be phased down, as the chairman knows so well.

We have got to do something to put this land back into production. I think this is not only a unique, but an exciting idea. I thank you for your time, and I thank you gentlemen.

Senator **Burdick**. Senator Exon, have you had any conversation with the Department of Agriculture on this?

Senator **Exon**. I have not had, but I heard the story that was just submitted by Mr. Raun, and that did not surprise me, because usually when you come up with some idea, the Department of Agriculture, under its present direction, is against it. I can't imagine why they wouldn't have said, "That sounds like a good idea. Prove to us that it is workable, and we would be delighted to introduce it into the agricultural economy to help get some cash flow back into rural America."

So I think it is the attitude that we have that, "We are paying to take that land out of production, and we want nothing growing on it." That makes no sense to any of us who have a basic understanding of the concerns of rural America and to come up with some progressive, thoughtful ideas to cure the problem.

Mr. **Knudsen**. Thank you very much, Senator, and as Senator Exon has pointed out, this is a nonprotein crop that would be commercialized as a new fiber. It has a potential for a very large volume of acres that could be put back into production. Our primary target market is a replacement of down and insulation applications. Right now, 80 percent of the down in the United States is imported from other countries, and this is a crop that we can grow domestically and produce a down substitute.

I am showing the subcommittee a sample of a milkweed floss. We grow the milkweed plants in cultivated fields to maturity, harvest the pods and process those pods to produce milkweed floss, which is a down-like material.

That is a material that is difficult to use. In some ways, you need to blow that into jackets and so forth. So we also have worked with Kimberly-Clark to develop technology to make a nonwoven fabric from this material, and this is a sample of insulation inner lining material that would be used in jackets and comforters for insulation similar to some of the synthetic insulations.

We have produced prototype products and one that is especially near and dear to Mr. Raun's heart and all of us that are Nebraskans. This is a Nebraska cornhusker comforter with a great big N. Of course, you could make those in Michigan State farms, as Mr. Raun has had done for his friend Carter Harrison, who did the work at Michigan State in the early forties.

We also used this insulation lining in the production of prototype jackets. These jackets are thinner and lighter and warmer than comparable jackets with synthetic insulation.

What we have in agriculture is a problem of sales. Are you going to be able to sell these alternative crops? With these crops, with the milkweed and with these types of products, we are convinced that there is a big business there and look forward to getting into this market.

In the insulation market, for jackets and comforters is over $500,000, and this market is penetrated by using the fiber in its current form or in the batt material, the batt material being that little piece of material, but that market is $0.5 billion.

Longer term, we see removing the wax from the fiber and then the fiber becomes very absorbent. It can be used in absorbent materials such as diapers or Kleenex or any other material that needs to be absorbent. That market is several billion dollars.

So we see this as a product that has some current uses in high-volume markets and as production becomes more efficient, being able to introduce this milkweed floss into other very large volume, lower-price markets. We are very excited about it and very excited about having an opportunity to work with people like Ron Raun and the Senator and Nebraska to develop this crop. Thank you.

Senator BURDICK. What level of funding are you asking for here today?

Mr. RAUN. We are asking for, Senator, $75,000 of Federal support for the next fiscal year for a research program to be conducted by the University of Nebraska Institute of Agriculture and Natural Resources followed by, we would hope, an $80,000 level for 2 more years; $75,000 the next fiscal year, $80,000 the year after that, and $80,000 a year after that, to be matched with State support, a three-way split, State support through the University of Nebraska and with private funding.

We have already got the private drive underway through the University of Nebraska Foundation, and there is a good deal in that fund at the present time. We believe this does need to be a leveraged, three-way program, and we would hope that the Federal government would see fit to participate.

One other thing that I would like to mention to you, Senator. If you are familiar with outdoor garments and outdoor people certainly are, down is a product that is very effective as insulation, but it does have a tendency to absorb moisture.

That sample of material is the lining that is in this, and it is also in that jacket. You know that moisture resistance is really important. With the wax on that fiber, if you have a glass of water there, just pour a couple of drops of water on top of that material, and see what happens. It will ball up and it will stay there, and it could stay there and stay there and stay there. When you want to take it off that fiber, even though the fiber looks like it will absorb it like a sponge, but it will roll off right now and it will not absorb the moisture.

It shows an outstanding characteristic of moisture resistance as long as the wax is on the fiber. With the wax removed, as Herb says, then it become terribly absorbent, as absorbent as the supertrim Huggies and Pampers sold by the billions and billions in stores all over the United States. It is a natural fiber that is treated with chemico [sic] as exhibited in those items right now. We think we have got something with a lot of potential, and that we ought to really do our best, do our level best to develop it.

Senator BURDICK. I think you testified a few minutes ago, if I am not mistaken, that the Department of Agriculture wasn't very excited about this.

Mr. RAUN. I would like to elaborate just a little bit on this, Senator. The individuals with whom we spoke at the Department of Agriculture last week, after being in to testify, as we are testifying today, before a House committee, indicated that they were very much impressed with the potential of the product. They thought it was exciting. They could see that it had a great potential, but then there is the opportunity also, as we understand it, under existing legislation, to make an administrative ruling that while this crop is in the experimental stage, that we could grow some of it on diverted acres, set-aside acres, if you will, as long as it is an experimental crop, because you have got to recognize that we only need 300 more acres this year.

At the present time, we have 80 acres growing. We are going to proceed with our harvesting experience. We have got our own harvesting machine. We know the approach that we are going to use, the processing, et cetera. Our plan is to get 300 more acres, which is not even a half section of land, this year.

But in order to get farmers interested in producing this, and we know there is a good deal of risk involved, you have to remember this: It has been known as a pesky weed. It has not been really a weed that has caused economic disaster. It is one that farmers just believe that is kind of a troublesome weed. In order to interest the farmer in planting some of his acres to a weed, we need some incentive to get him involved in the project.

Their position on these experimental crops, as we understand it, is that other people have come in, the people who are promoting cranbe and kenaf, two crops which I know very little about. The cranbe people are going to be at a stage next year to run this kind of an experimental ruling, experimental crop ruling on diverted acres would be useful to them.

We are in the process of getting in touch with some of the people who are involved in kenaf, that it could be useful to them to have the same kind of ruling. As I say, it will not cost the government anything. It will be a way of helping people who are involved in these experimental crop projects to move ahead.

If the interpretation that we have of the law and what is possible under the law is correct, we would hope that the Department of Agriculture might reconsider their refusal to go along with the people who have requested that. What we were told last week was that others have been in; that, "We have told them all that they were not going to go along with it. It just doesn't seem to be the sound thing to do, and so we can't go along with it as far as you are concerned."

With all due respect to the people in the Department of Agriculture and whatever their reasons might be for doing this, we think that in the long haul, we need to be involved in these kinds of efforts that potentially could cut down our reliance on petroleum feedstocks and synthetic fibers and bring those diverted acres back into production and help to get us away from government subsidies.

Senator **Burdick**. Thank you very much.

Mr. **Knudsen**. Thank you.

[The statement follows:]

## Statement of Senator Exon

CHAIRMAN BURDICK AND MEMBERS OF THE SUBCOMMITTEE, I APPRECIATE THE OPPORTUNITY TO COME BEFORE YOU TODAY. AS MEMBERS OF THE AGRICULTURE APPROPRIATIONS SUBCOMMITTEE, YOUR TASK IS NEVER AN EASY ONE; BUT IT IS A VERY IMPORTANT ONE. MANY POLITICIANS HAVE CLAIMED THAT AMERICAN AGRICULTURE IS WELL ON ITS WAY TO RECOVERY. INDEED, SOME OF THE SYMPTOMS HAVE GOTTEN BETTER, BUT I AM NOT PREPARED TO GIVE AMERICAN AGRICULTURE A CLEAN BILL OF HEALTH AT THIS POINT. MUCH MUST BE DONE TO ENSURE A PROSPEROUS FUTURE FOR AMERICAN AGRICULTURE AND THIS SUBCOMMITTEE CAN AND WILL HAVE A TREMENDOUS IMPACT ON THE DIRECTION WE TAKE.

TODAY I WOULD LIKE TO TALK ABOUT SEVERAL INVESTMENTS IN AGRICULTURE THAT I THINK ARE VERY IMPORTANT. THEY ARE IMPORTANT FOR A VARIETY OF REASONS. SOME ARE ONGOING INVESTMENTS WITH WHICH YOU ARE FAMILIAR. OTHERS ARE NEW AREAS OF INVESTMENT THAT DESERVE YOUR ATTENTION.

FIRST, I WOULD LIKE TO SHARE WITH YOU MY SUPPORT FOR AN EXCITING PROPOSAL SUBMITTED TO ME JUST YESTERDAY BY THE UNIVERSITY OF NEBRASKA. KNOWN AS THE NEBRASKA CENTER FOR ADVANCED TECHNOLOGIES (NCAT), THIS PROPOSAL COMBINES RESEARCH IN SEVERAL AREAS AND IT ADDRESSES A MAJOR NATIONAL CONCERN -- OUR INABILITY TO MOVE TECHNOLOGY FROM THE LABORATORY TO THE MARKETPLACE.

IT HAS GENERATED BOTH OPTIMISM AND, MORE IMPORTANTLY, FINANCIAL SUPPORT FROM NEBRASKA. THE STATE AND THE UNIVERSITY FOUNDATION HAVE PLEDGED $50 MILLION TOWARDS THE PROPOSAL. THE CENTER WILL FOCUS ITS RESEARCH IN AREAS OF NATIONAL PRIORITY MAKING THE PROPOSAL WORTHY OF THE SENATE'S SUPPORT.

THE NATION'S LAND GRANT UNIVERSITIES HAVE BEEN A VALUABLE ASSET OVER THE YEARS AND I BELIEVE THEY CAN CONTINUE TO HELP REVITALIZE RURAL AMERICA. REVITALIZATION OF RURAL AMERICA, UNFORTUNATELY, WILL NOT COME EASILY. THE RESEARCH TO BE CONDUCTED UNDER THIS PROPOSAL WILL CONTRIBUTE TO BETTER HUMAN AND ANIMAL HEALTH, MORE EFFICIENT CROPS, AND THE DEVELOPMENT OF NEW FOOD PRODUCTS.

SUCH RESEARCH EFFORTS WILL GREATLY ASSIST IN OUR EFFORTS TO HELP OUR RURAL ECONOMY. I BELIEVE THE UNIVERSITY OF NEBRASKA IS ON THE RIGHT COURSE WITH ITS NCAT PROPOSAL. I WILL BE CLOSELY STUDYING THE UNIVERSITY'S PROPOSAL AND WILL SUBMIT MORE SPECIFIC COMMENTS IN THE VERY NEAR FUTURE.

MOVING ON, THE NATIONAL FOREST SERVICE PLAYS AN IMPORTANT ROLE IN THE MIDWEST. HAVING JUST CELEBRATED ARBOR DAY WHICH WAS STARTED IN NEBRASKA, WE SHOULD ALL BE A LITTLE MORE SENSITIVE TO THE VALUABLE WORK DONE BY THE FOREST SERVICE. UNFORTUNATELY, MUCH OF THIS WORK IN THE MIDWEST WILL GO BY THE WAYSIDE IF THE PRESIDENT'S PROPOSED FUNDING LEVELS FOR THE FOREST SERVICE PREVAIL. IN NEBRASKA ALONE, THE LINCOLN RESEARCH FACILITY WOULD BE HIT WITH A 36% REDUCTION IN FUNDING. WE SIMPLY CANNOT ALLOW THAT TO HAPPEN. THE RESEARCH CARRIED OUT AT THE FOREST SERVICE'S LINCOLN LABORATORY HAS IMPORTANT IMPLICATIONS FOR MANY STATES THROUGHOUT THE MIDWEST AND IT WOULD BE SHORTSIGHTED FOR NEBRASKA AND SURROUNDING STATES IF WE

ALLOWED THEIR RESEARCH TO BE SIDETRACKED. FOR THESE REASONS, I URGE YOUR COMMITTEE TO MAKE FUNDS AVAILABLE TO THE FOREST SERVICE TO REPLACE THE $224,000 ELIMINATED UNDER THE PRESIDENT'S BUDGET. I ALSO URGE YOU TO CONTINUE FUNDING FOR THE STATE AND PRIVATE FORESTRY PROGRAM. THE NEBRASKA FOREST SERVICE RECEIVED ABOUT $362,000 THROUGH THIS PROGRAM IN FISCAL YEAR 1988. THE PRESIDENT'S BUDGET PROPOSED ELIMINATING THIS FUNDING ENTIRELY. SUCH ACTION WOULD CRIPPLE THE NEBRASKA FOREST SERVICE'S ABILITY TO CONTINUE PROVIDING NEBRASKANS WITH TECHNICAL ASSISTANCE ON RURAL FORESTRY, FIRE PROTECTION AND CONTROL, FOREST MANAGEMENT, AND THE CONSERVATION RESERVE PROGRAM. I URGE YOU TO CONTINUE FUNDING AT THE 1988 LEVEL.

MR. CHAIRMAN, I WOULD ALSO LIKE TO FOCUS ON FUNDING FOR GRADUATE STUDIES FOR AGRICULTURE. IF AMERICAN AGRICULTURE IS TO REGAIN ITS POSITION OF STRENGTH, WE MUST CALL UPON AND DEVELOP THE BEST MINDS AVAILABLE. DR. TED HARTUNG OF THE UNIVERSITY OF NEBRASKA'S COLLEGE OF AGRICULTURE HAS BEEN A STRONG PROPONENT OF GRADUATE PROGRAMS IN NEBRASKA AND THROUGHOUT THE NATION AND I AGREE WITH HIM THAT WE NEED TO FORTIFY OUR EFFORTS IN THIS AREA. THE LEAD TIME REQUIRED TO TRAIN TEACHERS AND RESEARCHERS IN AGRICULTURE REQUIRES THAT WE INSTITUTE AN AGGRESSIVE RECRUITMENT AND TRAINING EFFORT. I REALIZE THAT THE FUNDING LEVEL OF $10 MILLION FOR GRADUATE TRAINING GRANTS AND $10 MILLION FOR THE SO-CALLED CHALLENGE GRANTS SUPPORTED BY THE NATIONAL ASSOCIATION OF STATE UNIVERSITIES AND LAND GRANT COLLEGES MAY NOT BE POSSIBLE GIVEN OUR CURRENT FISCAL SITUATION, BUT I URGE THE SUBCOMMITTEE TO MAKE A CONCERTED EFFORT TOWARD THAT END.

LOW-INPUT AGRICULTURE IS ANOTHER AREA THAT HAS RECEIVED A GOOD DEAL OF ATTENTION IN RECENT YEARS. A NUMBER OF NEBRASKA FARMERS HAVE TAKEN THE BULL BY THE HORNS IN THIS AREA. MR. RICHARD MAZOUR OF DEWEESE, NEBRASKA IS ONE OF THEM AND I HAVE SUBMITTED REMARKS TO THE COMMITTEE ON HIS BEHALF. LOW-INPUT OR SUSTAINABLE AGRICULTURE STRATEGIES ARE AN IMPORTANT WAY FOR FARMERS TO REDUCE THE COST OF PRODUCING THEIR CROPS. THEY CAN MAKE AN IMPORTANT CONTRIBUTION TO OUR AGRICULTURAL COMPETITIVENESS AND I URGE YOU TO SUPPORT THEIR EFFORTS.

ANOTHER AREA THAT IS IMPORTANT TO ME IS WATER QUALITY. NEBRASKANS ARE VERY DEPENDENT ON GROUNDWATER AND WE MUST TAKE ACTION TO ENSURE THAT ALL RURAL AMERICANS HAVE A RELIABLE SUPPLY OF QUALITY GROUNDWATER. OUR LAND GRANT UNIVERSITIES ARE POISED TO PLAY AN IMPORTANT ROLE IN PROTECTING GROUNDWATER QUALITY. THEIR EXPERTISE IN PRODUCTION AGRICULTURE AND THEIR EDUCATIONAL NETWORK MAKE THEM A LOGICAL RESOURCE FOR US TO CALL UPON TO ADDRESS THIS PROBLEM. OUR LAND GRANT COLLEGES HAVE PROPOSED SPENDING $25 MILLION ON WATER QUALITY RESEARCH AND $15 MILLION FOR WATER QUALITY EDUCATION AND MANAGEMENT EFFORTS. AGAIN, THOSE FUNDING LEVELS MAY BE TOO AMBITIOUS UNDER OUR CURRENT FISCAL SITUATION, BUT I URGE YOU TO PLACE SPECIAL EMPHASIS ON WORK IN THIS AREA.

THE GREAT PLAINS CONSERVATION PROGRAM IS ALSO ONE WHICH IS IMPORTANT TO MANY WESTERN STATES. UNFORTUNATELY, THE GREAT PLAINS CONSERVATION PROGRAM HAS BEEN TARGETED FOR ELIMINATION BY THE ADMINISTRATION. THIS PROGRAM PROVIDES IMPORTANT TECHNICAL ASSISTANCE AND COST-SHARING HELP.

MANY, MANY FARMERS IN THE GREAT PLAINS AREA WILL BE REQUIRED TO MAKE ADDITIONAL CONSERVATION EFFORTS UNDER THE 1985 FARM BILL AND I URGE YOU TO CONTINUE THE GREAT PLAINS CONSERVATION PROGRAM AT NO LESS THAN THE $20.5 MILLION LEVEL PROVIDED IN 1988.

AGRICULTURE IN TRANSITION IS ANOTHER PROGRAM THAT IS IMPORTANT TO NEBRASKA. YOUR SUBCOMMITTEE RECOGNIZED THE NEED FOR THIS PROGRAM LAST YEAR AND MADE $500,000 AVAILABLE FOR NEBRASKA'S PROGRAM. UNFORTUNATELY, THE "TRANSITION" IN AGRICULTURE IS FAR FROM OVER AND CONTINUED SUPPORT IN THIS AREA IS NEEDED. THEREFORE, I ASK THAT $500,000 AGAIN BE MADE AVAILABLE TO NEBRASKA'S AGRICULTURE IN TRANSITION PROGRAM.

FINALLY, I WOULD ALSO LIKE TO TALK ABOUT A PROBLEM WHICH I KNOW HAS BEEN A MAJOR CONCERN IN THE CHAIRMAN'S HOME STATE OF NORTH DAKOTA. LEAFY SPURGE, FOR THOSE OF YOU WHO MAY NOT BE FAMILIAR, IS A NOXIOUS WEED. BECAUSE CATTLE WILL NOT GRAZE LAND INFESTED WITH LEAFY SPURGE, IT CAN BE A REAL PROBLEM FOR CATTLEMEN. TWELVE YEARS AGO, I AM INFORMED, THERE WERE 300 TO 400 THOUSAND ACRES IN NORTH DAKOTA INFESTED WITH THIS WEED. THAT FIGURE HAS NOW RISEN TO OVER A MILLION ACRES IN NORTH DAKOTA AND THE SITUATION HAS GOTTEN SO SERIOUS IN SOME AREAS THAT GRAZING LAND HAS BEEN REMOVED FROM THE TAX ROLLS. I DO NOT WANT TO SEE THE SAME SCENARIO DEVELOP IN NEBRASKA. IT IS ESTIMATED THAT THERE ARE 200 TO 300 THOUSAND ACRES INFESTED IN NEBRASKA AND THE PROBLEM IS GROWING. I KNOW THE COMMITTEE HAS IN THE PAST INSTRUCTED THE USDA'S ANIMAL, PLANT HEALTH INSPECTION SERVICE (APHIS) TO TAKE ACTION IN THIS AREA AND I URGE YOU TO CONTINUE SUPPORTING WORK IN THIS AREA. NEBRASKANS HAVE ASKED THAT $300,000 BE PROVIDED THROUGH APHIS FOR MORE SPECIFIC AERIAL ANALYSIS OF THIS PROBLEM IN OUR STATE. THE TECHNIQUES TO BE DEVELOPED COULD HAVE APPLICATIONS THROUGHOUT THE NATION AND I STRONGLY SUPPORT THAT REQUEST.

MR. CHAIRMAN, I END MY PRESENTATION TODAY BY INTRODUCING A DISTINGUISHED NEBRASKAN TO THE SUBCOMMITTEE. ROB RAUN, A FARMER NEAR MINDEN, NEBRASKA, AND FORMER DIRECTOR OF THE NEBRASKA DEPARTMENT OF AGRICULTURE, IS HERE TO TELL YOU ABOUT IMPORTANT WORK HE AND THE UNIVERSITY OF NEBRASKA ARE UNDERTAKING IN AN EFFORT TO DIVERSIFY OUR FARM ECONOMY. ALSO WORKING ON THIS PROJECT IS HERB KNUDSEN WHO IS IN THE AUDIENCE. THEIR PROPOSAL IS AN IMPORTANT ONE AND I AM BEHIND IT 100 PERCENT.

## LETTER FROM RICHARD MAZOUR

April 29, 1988

The Honorable Quentin Burdick
Chairman
Subcommittee on Agriculture, Rural
  Development and Related Agencies
Committee on Appropriations
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

My name is Richard Mazour. I own and operate a diversified farm in Deweese, Nebraska, in the south-central portion of the state. I wish to thank you for allowing me to speak to you about low-input farming. I would also like to express my sincere gratitude for your past support of research and education for low-input agriculture.

Over the last 24 years I've been farming, I've always been interested in soil and water conservation. I've served eight years on a Natural Resource District Board and received many awards for conservation practices on my farm.

I adopted no-till farming which is very good for soil conservation but is also quite chemically extensive. My costs for this system were $48.00 an acre for dryland grain sorghum. Gradually, I become more aware of farm chemicals showing up in our groundwater and became concerned.

I started looking for alternatives and, in 1983, began including legumes and rotation in my cropping plans. Last year I had an eight acre field of Grain Sorghum that produced 70 bushels per acre (about average for our area). Costs were $19.00 per acre.

My greatest success was with a 12 acre field with oats and sweet clover. The oats produced 70 bushels per acre. Three weeks later, I harvested 20 tons of sweet clover hay. The sweet clover is back this spring, producing nitrogen for the Grain Sorghum, which I will be planting shortly.

I received $2.00 per bushel for the oats and valued the hay at $30.00 per ton, for a gross of $190.00 per acre. My costs per acre were $23.00. Thus, I had a net profit of $167.00 per acre.

I estimate that the utilization of fertilizers and pesticides would have decreased my profit by $25.00 per acre. In addition, I would not have grown sweet clover hay which added $45.00 per acre to my profit.

I have noticed an increase in soil tilth on these fields and noted the intake of rainfall is much greater than on my conventional fields. The use of cover crops are protecting the soil from water and wind erosion. I have also noticed an increase in the population and diversity of wildlife on my farm. I am convinced that low-input farming can lead to a more stable farm structure.

As you can see, I have had success on a small scale, but I need help. I have difficulty starting legumes in some fields. I'm having problems controlling noxious weeds in my pasture. Research is also need for fly control on cattle. Many farmers in my area are interested in low-input agriculture and they also have many questions that need to be answered.

There is a great need for research and education and I am asking for your continued support and to increase funding for low-input farming systems.

I have the honor of serving on the North Central Technical Committee on Low-Input Farming Systems and have available for you the minutes of our March 22 meeting at Lincoln.

Also, I wish to share with an article published in the High Plains Journal, a farm paper which serves 8 states (see attachment).

Thank you once again for allowing my testimony.

Richard Mazour
Route 1
Box 27
Deweese, Nebraska 68934

[From the High Plains Journal, Apr. 11, 1988]

## MIDWEST SCIENTISTS DISCUSS SUSTAINABLE AGRICULTURE THEORY

It was a first.

More than 100 agronomists, agricultural engineers, plant pathologists, animal scientists and entomologists from 12 states met at the University of Nebraska recently to discuss the farm production and management strategy called "sustainable agriculture."

This approach to farming sustains the environment by using less synthetic fertilizers, herbicides and pesticides, and fewer tillage operations to prevent soil erosion. Growing crops or producing animals without the traditional inputs becomes a challenge for farmers seeking profits using this holistic, systems management.

Scientist attending the conference reflected on how times and attitudes have changed.

A few years ago the "O" word was spoken in hushed tones in agricultural circles, said Chuck Francis, UN Extension crops specialist. Today organic farming is getting more respect now that it falls under the protective umbrella of "sustainable agriculture," he said.

That is an approach that helps producers choose soil fertility packages, a pest management approach, a tillage system and a crop rotation to reduce costs of purchased inputs and to reduce the system's impact on the environment while still providing produce and profit. It requires the expertise of scientists from different disciplines working together to research farming systems. For the farmer, scientist agreed this "low-input" agriculture takes more time to manage.

Why are farmers willing to invest time to learn different farming management techniques?

Concern about groundwater pollution and soil erosion was the motive for Richard Mazour, a Deweese, Neb., farmer who manages a diversified livestock and grain operation.

"I realized as a farmer I am a contributor to groundwater pollution," he said.

Mazour is past president of the Nebraska Sustainable Agricultural Society, a non-profit organization over a year old formed by farmers to educate urban and rural people about sustainable agriculture.

"We are a contact point between farmers and the university," said Mazour. The organization sponsors educational workshops and demonstrations of farming practices which use the low-input approach. It also distributes a newsletter to 1,500 people every two months.

Farmers like Mazour and scientists like Francis are excited about the recognition sustainable agriculture is receiving. Federal legislation through the 1985 farm bill called for research and education efforts to promote the development and adoption of low-input farming methods. The Cooperative State Research Service of the U.S. Department of Agriculture selected the Agricultural Research Divisions in land grant universities at Nebraska, Georgia, California and Vermont to serve as regional leaders in sustainable agriculture.

Scientist from the 12 states met the second day of the conference to identify and select priorities and start writing proposals for interdisciplinary research, which can include cooperative efforts between different universities, for the USDA funding.

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## STATEMENT OF ROB RAUN, RALPH HOLZFASTER, AND HERB KNUDSEN

We are grateful for the opportunity to appear before this subcommittee today in support of the proposal to fund research on the milkweed plant as an alternative source of fiber. This fiber has several potential uses, one of which appears to be feasible and competitive in the marketplace at the present time.

Ralph Holzfaster and I are appearing here today as two agricultural producers who are part of a group composed of agribusinessmen, farmers, and university researchers who believe that this product has great potential for eventually bring substantial amounts of idle farmland back into production. The realization of this objective would help to revitalize our struggling rural communities, allow farm producers to be less dependent upon federal farm programs, contribute to a lowering of those program costs to the federal government, and produce a domestic product to compete with products which are mostly imported at the present time.

Agricultural producers and the agribusinessmen in rural communities throughout the nation are becoming increasingly aware of the need to not only develop new uses for existing commercial crops, but to also find new crops with uses that are not competitive with existing products from United States farms.

Together, Ralph Holzfaster and I have experimented with several nontraditional crops during our many years of experience in operating our individual farms which are located in separate parts of Nebraska. Because of a common interest in water resource management, soil conservation, and farm policy problems, we have been acquaintances for a number of years. The milkweed project has brought us together in a project to which we are now devoting a great amount of time and effort. We're assuming significant economic risk related to this attempt to establish milkweed as a new crop because we believe that agricultural producers should take a leading position in the ranks of those who are trying to revitalize rural America. The proposed research by the University of Nebraska as well as a strong R &

D effort by a new company led by Herb Knudsen, a former Executive with Standard Oil Company of Ohio (SOHIO), who have had milkweed research in progress for several years, are critical to the success of this project.

We strongly believe in the partnership approach to solving our agricultural problems. The members of this partnership are: (1) farm producers; (2) agribusinessmen who supply producers' many needs and who purchase and process farmers' products; (3) the land grant universities which, together, have done a major portion of the research which has contributed to the amazing productivity of U.S. farms; (4) appropriate agencies of state government; (5) the federal government which, through the USDA, has provided some stability in the agricultural economy and implemented the agricultural policy decisions made by the members of Congress and the executive branch of government.

This project to develop milkweed floss as a new product of agriculture is already using all of these partners effectively, but additional commitment and involvement by all of the partners will be necessary in order to achieve success.

An outline of some of the present and proposed involvement of these partners follows:

## FARM PRODUCERS

Ralph Holzfaster and I currently have farmland planted to milkweed. We have carefully assessed the potential of the crop during the last three years, and believe that it justifies assuming the risk involving in planting highly-productive irrigated land to what has been commonly known as a troublesome perennial weed. We have done this without any guarantee that we can grow, harvest, process, and market the product successfully. Our milkweek plantings occupy acres that could otherwise be used to satisfy acreage requirements for participation in basic commodity programs. We are not even sure that the milkweeds can be destroyed successfully if the project fails. Obviously, we have weighed all of these risks against the potential, and have made a firm commitment to give this project "our very best shot."

During this 1988 growing season, we plan to enlist approximately 10 new producers in the project who are basically willing to assume the same risks and who embrace our philosophy which says that, "We, as individual farmers, need to do all that we can to find the solutions to the problems of surplus agricultural productive capacity."

## AGRIBUSINESS AND THE PRIVATE SECTOR

As stated in the grant application, Standard of Ohio (SOHIO), supported several years of milkweed research with the objective of developing a substitute for crude oil from the milky say (latex) of the plant. This research produced a substitute for crude oil, but at a prohibitively high cost. At about the same time, a major paper company became interested in the floss because of its outstanding absorptive capacity when properly processed to remove the natural wax from the fiber. This company has expressed a serious interest in using the floss, but would need an enormous amount on a continuing basis in order to make the change from the wood fluff ingredient currently being used in its principal products.

SOHIO made the decision in the fall of 1986 to discontinue its milkweed research program because of a change in strategic direction. The major paper company with interest in floss is assisting in the business but much needs to be done with lower volume products while conducting the lengthy program that would be necessary to build up the high level of floss production needed.

The present project supporters are counting on the unique properties of floss in personal insulation to provide the economic incentive necessary to push milkweed production ahead. The floss has a natural wax coating which makes the tiny hollow fiber resistant to moisture. These characteristics result in superior insulting qualifies for the material. Tests of a nonwoven fabric material composed of 60% milkweed floss and 40% synthetic fiber binder done at the Kansas State University Environmental Research Facility indicates that the tested material is superior to Thinsulate as insulation when compared on a unit weight basis. Other tests done at the University of Wisconsin-Green Bay and at the Albany International Research Unit indicate a clear superiority of milkweed floss over goose down as insulation. The fact that almost all the down used in the United States is currently imported is an important consideration to the supporters of this project.

The research administrator formerly in charge of the project for SOHIO, Mr. Herb Knudsen, continues to have much confidence in the future of the floss. He has acquired rights to accumulated results of the research from the SOHIO project, and is now heading an effort to organize the business entity that will be necessary to contract with producers, process the floss, and market it to manufacturers. His Natural Fibers Corporation has attracted serious interest form at least two venture capital groups and several individual investors. It is one of the new entrepreneurial activities now receiving very serious consideration from the Nebraska Research and Development Authority. He has commissioned a scientific survey of consumers which indicates that milkweed has a positive image among consumers, probably because it is a plant often used for artistic purposes.

In an assoicated effort, a number of milkweed floss insulated items in the quilt or comforter category have been assembled and distributed with highly favorable reactions from the recipients.

Growing support for this project from the private sector is anticipated, and we consider this an essential ingredient for final success.

## LAND GRANT UNIVERSITIES

The history of attempts by man to utilize the floss of the milkweed for economic purposes covers many years at several locations in the world.

Except for the present effort, the most noteworthy activity took place during World War II when the hand collection of floss for use in lifejackets became a part of the war effort. That activity was supported in many parts of the United States, and the material collected was forwarded to Michigan State University where the project was coordinated. Among the institutions involved in milkweed research along with Michigan State were Iowa State and North Dakota State.

By the time World War II ended, much milkweed material was on hand, but it had never really been proven as an economic product. Along with many other wartime projects, it was soon forgotten. The experience gained at that time has been drawn upon extensively during the last few years, however.

The University of Nebraska, through its Institute of Agriculture and Natural Resources, has rallied in support of our project. Its administrators are in total agreement that this is the type of innovative agricultural research that should be supported. The funding request you are considering here today is ample evidence of that commitment by the University. A considerable amount of activity is already underway, particularly in the Department of Agricultural Engineering, Plant Pathology, and Agronomy. The Textiles Department of the College of Home Economics has provided valuable consultation and will also be involved in research. Entomology and Agricultural Economics will also provide valuable support as we progress. Dr. Lenis Nelson, an agronomist, has been assigned as the Unversity's leader of the research project.

From the beginning, we have felt that research at the University of Nebraska and other institutions would be essential to solve the many production, handling, and processing problems. We also believe that private contributors should support the University research effort, and we are pelased to report there have already been several substantial contributions to the University of Nebraska Foundation for that purpose.

## STATE GOVERNMENT

In 1983, I was prevailed upon to temporarily leave my farming operation to assume the post of Director of the Nebraska Department of Agriculture. During two years in that position, I was besieged by telephone calls and letters from economically distressed farmers who were suffering severely from the after affects of the over-optimism that afflicted agriculture in the 1970s. When I happily returned to my farm in 1985, I resolved to devote as much of my time as possible to the search for new crops and new uses for existing crops in order make a contribution to the solution of agriculture's long-term problems.

Shortly after returning to my farm, a call from a former employee in the Nebraska Department of Agriculture suggested to me the possibility that milkweed was a plant with great potential. Since that time, each new development has increased my interest. The current leadership of the Nebraska Department of Agriculture is supporting this project in every possible way. A similar statement can be made relative to the Nebraska Department of Economic Development and the Nebraska Governor's office.

## FEDERAL GOVERNMENT

Finally, we come to the essential involvement of the federal government. One of the very important documents which provided a foundation for our milkweed research program is a USDA bulletin published in 1943 which summarizes the efforts in milkweed research and product development around the world up until that time. I was given this bulletin, along with others, from the file of Dr. Carter Harrison, Professor Emeritus of Agronomy, at Michigan State University. Other inquiries by University of Nebraska faculty produced a copy of a recent research paper from the USDA Southern Regional Research Center at New Orleans, Louisiana entitled, "Introducing a Novel Textile Product: Cotton/Milkweed Blends." As a result of subsequent discussions with the administrators of that center, we have provided additional floss for a follow-up research project. There appears to be a possibility that the natural floss of the milkweed, in appropriate blends with cotton, imparts some highly useful characteristics to the resulting textile. If we can solve the problems associated with producing the floss, one of our optimistic dreams is that in addition to providing high quality insulation material, it could one day replace some of the synthetic fibers in cotton blends.

We are here today because we believe that the federal government should support research through this relatively modest proposal. This will not have a great impact on U.S. agriculture next year or, for that matter, serveral years in the future. This project is aimed at helping to solve the long-term problem which agriculture faces--the chronic problem of excess productive capacity. If successful, it could also help to address the growing concern related to deforestation by replacing some of the absorbent materials now being used by paper manufacturers. It might also repalce some synthetic fibers which are made from dwindling petroleum feedstocks and reduce U.S. dependence on imported insulation materials.

We intend to pursue the possibility of administrative rulings from ASCS or new legislation, if necessary, which will allow us to grow and harvest this experimental crop on diverted acres while we are searching for the answers to the many production problems we face. Such a ruling would result in no added expenditure to the federal government, but would be a great assistance to this project during its first few years.

We know this is not the first time you have heard glowing reports of the potential of possible new crops. We know the success for this project is far from assured. We hope you will agree with us when we say that the risk is worth taking. It is a risk worth taking because it is a sincere effort to help to brighten the long-term future of the nations agriculture.

### SUBCOMMITTEE RECESS

Senator **Burdick**. The committee will be in recess until 2 o'clock.

[Whereupon, at 12:35 p.m., Wednesday, April 27, the subcommittee was recessed, to reconvene this same day at 2 p.m.]

(AFTERNOON SESSION, 2:05 P.M., WEDNESDAY, APRIL 27, 1988)

## CONGRESSIONAL WITNESS

### STATEMENT OF HON. DAVID KARNES, U.S. SENATOR FROM NEBRASKA

Members present: Senators Burdick and Cochran.

Senator **BURDICK**. Our next witness will be the Honorable David Karnes, a Senator from the State of Nebraska. Welcome to the committee, Senator.

Senator **KARNES**. Mr. Chairman, it is a pleasure to be here before your committee for the first time. I appreciate the opportunity to present some testimony, particularly in the area of the revitalization of rural America.

I have a complete statement that I will submit for the record, and I will just summarize my remarks. I will commence by stating that just this Monday, we had, in a town in Nebraska—Broken Bow—the first of five hearings by the Department of Agriculture on rural economic development.

One of the things that came out in that hearing was the importance of self-help programs where the Government provides a partnership relationship with rural communities. Under Secretary Roland Vautour, who is head of that section of the Department of Agriculture, indicated that the block grant program has been of great help to the rural communities in order for them to help themselves, and I would strongly support continuation of the block grant programs for rural economic revitalization.

Also, I am here to support funding for S. 2281, the Rural Regeneration Act of 1988, of which I am a cosponsor with Senator Boschwitz. This focuses on the three R's of rural America as far as I am concerned—revitalization, recapitalization, and retraining. The bill ties together self-help with college assistance; community college assistance; business and community assistance with appropriate Federal assistance. It is a very good bill. I would encourage support of that provision.

Third, I am seeking support for $5 million in Federal funding for the University of Nebraska Center for Advanced Technologies. The University of Nebraska at Lincoln is proposing a regional center for advanced technologies, particularly in the area of agriculture, which would benefit both your State and my State.

The center would have four components: A center for excellence in biotechnology; a center for excellence in computational science; a center for excellence in materials research and an overall background center for advanced technologies that would seek to develop commercial market uses for these advancements. This would be a regional center and not just a center for Nebraska.

Fourth, I am here testifying in support of a $2.8 million request to fund pseudorabies control and eradication. This pseudorabies disease costs pork producers about $30 million each year. A 1974 survey indicated a 1 percent infection rate among hogs. However, a 1984 survey indicates that this infection rate has increased to 8 percent of the market weight of hogs, a tremendous expense for our hog producers in our country.

Last, Mr. Chairman, I am here to speak in support of a small but a very important $10,000 grant to convert the powerplant at Shadrick State College to a biomass type of energy source. This uses a natural renewable Nebraska resource of wood and will allow the towns to buy this biomass fuel from its local economy, pumping an estimated $230,000 per year into the local economy of Shadrick.

These five projects, Mr. Chairman, are small but are very important for our State. Mr. Chairman, rural America in Nebraska and elsewhere has survived a major economic storm over this past decade, but they have bounced back. These new products in my State signal new jobs for our young people seeking to remain in rural America. New jobs mean expanding the tax base that strengthens needed rural services.

New jobs are the source of optimism that turns a community around, particularly a rural community. We heard this in Broken Bow this week. I look forward to working with the citizens of rural America as they face the challenges of the 21st century, and these projects that I speak of will do a great deal to assist in that regard.

If you have any questions, Mr. Chairman, I would be happy to try to answer them. If not, that concludes my testimony.

Senator **Burdick**. I noticed there are several bills in here of which you are a cosponsor, Senator Boschwitz' bill and others. Do you know what the status of those bills are? Have they had hearings or anything?

Senator **Karnes**. No, they haven't, Mr. Chairman.

Senator **Burdick**. They won't get into full production until next session, maybe.

Senator **Karnes**. As a member of the Senate Agriculture Committee, we have not scheduled those for hearings, so it may well be into the next session, yes.

Senator **Burdick**. Yes. I think you made a good statement, and we appreciate it. I can't think of any questions to ask you.

Senator **Karnes**. Thank you, Mr. Chairman.

Senator **Burdick**. Thank you very much.

Senator **Karnes**. And I thank you for supporting rural America, always.

Senator **Burdick**. Thank you.

[The statement follows:]

## STATEMENT OF SENATOR KARNES

MR. CHAIRMAN AND RANKING MINORITY LEADER, I COME HERE TODAY BECAUSE OF MY COMMITTMENT TO BEGIN THE REVITALIZATION OF RURAL AMERICA. ON MONDAY OF THIS WEEK, I WAS IN BROKEN BOW, NEBRASKA WITH ROLAND VAUTOUR, UNDERSECRETARY OF AGRICULTURE FOR SMALL COMMUNITY AND RURAL DEVELOPMENT. WHILE IN BROKEN BOW, I PARTICIPATED IN A PANEL DISCUSSION WITH SEVERAL NEBRASKA RESIDENTS ON THE ROLE THE DEPARTMENT OF AGRICULTURE SHOULD HAVE IN RURAL DEVELOPMENT.

OVER THE PAST DECADE, RURAL AMERICA HAS BECOME MORE AND MORE DEPENDENT UPON THE VITALITY OF AGRICULTURE. IN OUR DESIRE TO ASSIST THE AGRICULTURAL SECTOR, WE HAVE HELD HOURS OF HEARINGS, SPENT BILLIONS OF DOLLARS, AND AGONIZED OVER SUPPORT PRICES THAT WOULD KEEP FAMILY FARMERS IN BUSINESS. OTHERS HAVE EVEN HELD ROCK CONCERTS TO DRAW ATTENTION TO THE ECONOMIC CRISIS ON THE FARM.

WITH BROAD CONGRESSIONAL BACKING, WE HAVE, IN THE COURSE OF TIME, AND WITH A LOT OF SWEAT AND HARD WORK, BEGUN TO TURN THE FARM ECONOMY AROUND. LAND PRICES ARE BEGINNING TO STABILIZE AND FARM INCOME REACHED A RECORD $57 BILLION LAST YEAR. EXPORTS ARE MAKING A COME BACK IN THE MOST COMPETITIVE MARKETS OUR PRODUCTS HAVE EVER FACED.

WHILE I APPLAUD THESE EFFORTS AND I SUPPORT MANY OF THE INITIATIVES THAT HAVE MADE RECOVERY FOR FARMERS POSSIBLE, RURAL AMERICA HAS, FOR THE MOST PART, FAILED TO BECOME A PART OF THAT RECOVERY. WHILE THE ECONOMY IN GENERAL CONTINUES ON THE LONGEST PEACETIME EXPANSION AMERICA HAS EVER HAD, OUR SMALL TOWNS ARE FIGHTING AN ECONOMIC BATTLE FOR SURVIVAL THAT WILL SHAPE AMERICA WELL INTO THE 21ST CENTURY.

THIS BATTLE FOR SURVIVAL IS OCCURRING FOR MANY REASONS. MOST ECONOMIC INCENTIVE PROGRAMS DESIGNED FOR BUSINESS DEVELOPMENT ARE BASED UPON FORMULAS OR ASSUMPTIONS THAT STACK THE DECK AGAINST RURAL AMERICA. THE BENEFITS, WHICH ARE USUALLY SIGNIFICANT, ARE DESIGNED FOR LARGER METROPOLITAN AREAS AND DO NOT BENEFIT THE SURROUNDING SMALL TOWNS.

MANY SMALL TOWNS IN NEBRASKA HAVE EXPERIENCED THE FRUSTRATION OF LOSING BUSINESS OPPORTUNITIES BECAUSE OF A FORMULA THAT, DEFINES THE TOWNS OUT OF CONTENTION. THE RURAL AMERICA OF THE 1980'S FACES MANY OF THE SAME PROSPECTS OF THE APPALACHIA OF THE 1960'S.

MANY RURAL BUSINESSES, IN MY HOME STATE OF NEBRASKA, WERE STARTED AT THE END OF WORLD WAR II AS SOLDIERS RETURNED TO CIVILIAN LIFE. IT HAS BEEN 43 YEARS SINCE THE END OF WORLD WAR II. MANY OF THESE YOUNG SOLDIERS ARE NOW REACHING RETIREMENT AGE AND ARE LOOKING TO PASS ALONG THEIR BUSINESSES TO A NEW GENERATION IN RURAL AMERICA. THE RURAL DEVELOPMENT POLICY THAT WE PUT INTO PLACE IN THE NEXT FEW YEARS WILL HELP SHAPE RURAL AMERICA FOR A GENERATION TO COME.

FARMERS MUST COMPRISE AN IMPORTANT COMPONENT OF ANY REVITALIZATION EFFORT OF RURAL AMERICA. HOWEVER, IT IS APPARENT THAT FARMERS ARE NOW MUCH MORE CONSERVATIVE IN THEIR SPENDING HABITS. MANY FARMERS ARE NOW INTENT ON PAYING DOWN OLD DEBT. INDEED, THEY ARE OFTEN FORCED TO DO SO BY THEIR LENDING INSTITUTIONS. THEY ARE MUCH MORE RELUCTANT TO OVER-EXTEND THEMSELVES THIS TIME THAN THEY WERE IN THE PAST.

IN FACT, FARMERS, THEMSELVES, ARE INCREASINGLY DEPENDENT UPON A VITAL, JOB GENERATING RURAL SECTOR FOR THEIR OWN ECONOMIC WELL-BEING. MANY FARMERS HAVE TAKEN OFF-FARM JOBS LOCATED IN TOWNS IN ORDER TO SUPPLEMENT THEIR FARM INCOME. IN FACT, FULLY HALF OF A FARM FAMILY'S INCOME IS DEPENDENT ON NONFARM SOURCES - JOBS THAT

ARE IN THE SMALL TOWNS THAT DOT THE RURAL AREAS OF STATES SUCH AS MY OWN STATE OF NEBRASKA.

WITH OUR CURRENT FARM PROGRAMS, THE PRODUCT OF THE 1985 FOOD SECURITY ACT, WE ARE WELL ON THE WAY TO ACHIEVING THE FIRST PHASE OF RECOVERING FROM THE FARM CRISIS--REVITALIZING AGRICULTURE. IT IS TIME TO BEGIN PHASE II--A PROGRAM TO REINVEST IN THE BACKBONE OF AMERICA, RURAL AMERICA'S SMALL BUSINESSES AND SMALL TOWNS.

THE PEOPLE OF MY STATE OF NEBRASKA HAVE HAD ENOUGH OF SEEING THEIR DOWNTOWN SHOPPING AREAS DECLINE AS SHOPS HAVE CLOSED AND GONE OUT OF BUSINESS. WE NEED TO STIMULATE SMALL TOWN ECONOMIES AT THE GRASSROOTS LEVEL, TO BREATH NEW LIFE INTO THE BUSINESS DISTRICTS. WE NEED A PROGRAM THAT WILL HELP SHOPKEEPERS PULL THE BOARDS OFF THEIR SHOP WINDOWS, OPEN THEIR DOORS, AND GET BACK INTO BUSINESS.

AS I VISIT THE TOWNS OF RURAL NEBRASKA, I SEE THAT THE PEOPLE HAVE THE PRIDE AND DETERMINATION TO HELP THEMSELVES WITH THE GOVERNMENT ACTING AS A PARTNER. THEY AREN'T LOOKING FOR A HANDOUT. THEY ARE LOOKING FOR ASSISTANCE THAT IS MEASURED AND APPROPRIATE.

WHAT IS NEEDED IN RESPONSE, IS A FLEXIBLE PROGRAM THAT ENCOURAGES SMALL RURAL COMMUNITIES TO WORK WITH STATE AND LOCAL GOVERNMENTS IN DESIGNING PLANS THAT WILL BE EFFECTIVE ON A LOCAL LEVEL. WHAT IS ALSO NEEDED IS A PLAN THAT WILL TARGET RURAL AREAS AND STATES WHICH HAVE BEEN HIT HARDEST BY THE DIFFICULT YEARS THAT AGRICULTURE HAS ENDURED.

THE ADMINISTRATION HAS PROPOSED EXPENDING $8 BILLION IN SMALL COMMUNITY AND RURAL DEVELOPMENT PROGRAMS IN FISCAL 1989. THAT IS A DECREASE OF OVER $2.6 BILLION FROM FISCAL 1988. THERE IS AN INCREASE OF ALMOST $1 BILLION IN FARMER'S HOME ADMINISTRATION (FMHA) FARM OPERATING LOANS OVER 1988. AND, THE DEPARTMENT HAS PROPOSED INCREASING EXPENDITURES FOR FEDERAL CROP INSURANCE BY $76 MILLION ABOVE A YEAR AGO. THE DEPARTMENT DOES NOT HAVE AN OVERALL, COMPREHENSIVE RURAL DEVELOPMENT POLICY.

I BELIEVE THAT $8 BILLION IS PROBABLY SUFFICIENT TO ACCOMPLISH MUCH OF WHAT NEEDS TO BE DONE TO REVITALIZE RURAL AMERICA. IN AN ERA OF EXPLODING BUDGET DEFICITS, I COULD NOT IN GOOD CONSCIENCE JUSTIFY SPENDING ADDITIONAL TAXPAYER DOLLARS. HOWEVER, THERE ARE AREAS OF THE RURAL DEVELOPMENT BUDGET WHERE A REALLOCATION OF FEDERAL DOLLARS MAKES SENSE.

FOR THE MOST PART, IT SHOULD BE UP TO THE RURAL AREAS THEMSELVES TO DETERMINE THE USE OF THAT MONEY. IN 1984, THE DEPARTMENT OF AGRICULTURE PUBLISHED A REPORT TITLED A PARTNERSHIP FOR PROGRESS. THE REPORT STATED, IN PART, THAT: "[THE] RESOURCEFUL RURAL CITIZEN HAS SURVIVED THE CAPRICES OF WEATHER, LONG YEARS OF ECONOMIC DECLINE IN AN INCREASINGLY URBAN NATION, AND MUCH MORE WITH A GREAT DEAL OF SUCCESS. IT WOULD BE PRESUMPTUOUS FOR THE FEDERAL GOVERNMENT TO TELL THE RURAL AMERICAN HOW TO LIVE, WORK, OR MAKE PROGRESS. STILL, IT IS THE RESPONSIBILITY OF THE FEDERAL GOVERNMENT TO TREAT EVERY CITIZEN - RURAL OR URBAN - WITH THE SAME RESPECT AND CONCERN. IT IS THE RESPONSIBILITY OF THE FEDERAL GOVERNMENT TO SEARCH FOR CONSTRUCTIVE WAYS OF SUPPORTING THE RURAL CITIZEN AND ENCOURAGING THE PROGRESS OF RURAL AMERICA WITHOUT SEEKING TO DICTATE THE TERMS OF THAT PROGRESS TO THE LAST DETAIL."

I RECOMMEND THAT FEDERAL DOLLARS SPENT TO ASSIST RURAL AMERICA SHOULD BE ALLOCATED TO THE STATES IN BLOCK GRANTS. UNDER BROAD GUIDELINES, THE STATE AND LOCAL COMMUNITIES SHOULD BE FREE TO SPEND THESE TAX DOLLARS FOR BETTER EDUCATION, HEALTH CARE, BUSINESS DEVELOPMENT AND OTHER NEEDED SERVICES AS NEEDED. WHERE

POSSIBLE, RURAL DEVELOPMENT FUNDS UNDER THE AUSPICES OF DIFFERENT FEDERAL AGENCIES SUCH AS THE DEPARTMENT OF EDUCATION AND THE DEPARTMENT OF HEALTH AND HUMAN SERVICES, SHOULD COORDINATE THE ALLOCATION OF THESE BLOCK GRANT MONIES.

RURAL COMMUNITIES DO NOT NEED MORE FEDERAL PROGRAMS DICTATED FROM WASHINGTON. WHAT IS NEEDED IS AVAILABLE CAPITAL AT COMPETITIVE MARKET RATES. THE DEPARTMENT OF AGRICULTURE, AND OTHER FEDERAL AGENCIES CONCERNED WITH RURAL REVITALIZATION ARE MOVING IN THE RIGHT DIRECTION. ON THE HILL, SEVERAL INITIATIVES ARE CURRENTLY UNDERWAY TO ADDRESS RURAL DEVELOPMENT. MY OWN AGRICULTURE COMMITTEE HAS BEEN EXPLORING THE POSSIBLITY OF AN OMNIBUS MEASURE. SENATOR'S BOSCHWITZ, DOLE, AND MCCONNELL EACH HAVE INTRODUCED LEGISLATION THAT EXAMINES AREAS OF NEED IN RURAL AMERICA.

SENATOR BOSCHWITZ'S BILL, S. 2281, THE RURAL REGENERATION ACT OF 1988, OF WHICH I AM A COSPONSOR, IS A MULTIFACETED APPROACH TO THIS COMPLEX PROBLEM. IT PROVIDES THE HELP THAT SMALL COMMUNITIES NEED TO HELP THEMSELVES. IN PART, THE BILL PROPOSES A TAX DEDUCTION FOR EMPLOYEE EDUCATIONAL EXPENSES PAID BY THE RURAL EMPLOYER AND A ONE-TIME 50 PERCENT MATCHING GRANT THROUGH THE DEPARTMENT OF EDUCATION TO LINK POST-SECONDARY EDUCATIONAL INSTITUTIONS WITH LOCAL BUSINESS AND INDUSTRY TO BEST PROMOTE ECONOMIC DEVELOPMENT.

S. 2281 WOULD ALSO AMEND THE JOB TRAINING PARTNERSHIP ACT TO PROVIDE RURAL ENTERPRISES AND WORKERS WITH READJUSTMENT SERVICES, RETRAINING AND SUPPORT. IT WOULD ALSO ALLOCATE DISCRETIONARY JOB TRAINING FUNDS WITHIN STATES BY TAKING INTO ACCOUNT UNDERREPRESENTED FARM AND RANCH DISPLACEMENT.

THE BILL WOULD ALSO PROVIDE MATCHING GRANTS TO COLLEGES AND VO-TECH SCHOOLS IN RURAL AREAS TO ASSIST IN THE DEVELOPMENT AND MARKETING OF NEW AGRICULTURAL PRODUCTS. THERE ARE SEVERAL NEW PRODUCTS ON THE HORIZON. TWO PRODUCERS IN MY OWN STATE OF NEBRASKA, ROB RAUN, WHO YOU WILL MEET LATER, AND RALPH HOLZFASTER, ARE WORKING ON MAKING MILKWEED A VIABLE ALTERNATIVE PRODUCT TO GOOSE DOWN. I WILL LET THEM TALK ABOUT THIS PRODUCT AT GREATER LENGTH BUT IT DOES SERVE AS A GOOD EXAMPLE OF THE INITIATIVE THAT IS BEING DISPLAYED ACROSS RURAL AMERICA.

THE BILL ALSO CHANGES PROVISIONS OF THE FARM CREDIT SYSTEM STATUTES THAT PERMIT THE FEDERAL LAND BANKS AND PRODUCTION CREDIT ASSOCIATIONS TO PROVIDE FINANCING FOR ECONOMIC DEVELOPMENT PROJECTS.

MR CHAIRMAN, RURAL AMERICA, IN NEBRASKA AND ELSEWHERE, HAS SURVIVED A MAJOR ECONOMIC STORM OVER THE PAST DECADE, BUT THEY HAVE BOUNCED BACK. NEW PROJECTS IN MY STATE SIGNAL NEW JOBS FOR OUR YOUNG PEOPLE SEEKING TO REMAIN IN RURAL AMERICA. NEW JOBS MEAN EXPANDING THE TAX BASE THAT STRENGTHENS NEEDED RURAL SERVICES. NEW JOBS ARE THE SOURCE OF OPTIMISM THAT TURNS A COMMUNITY AROUND. I LOOK FORWARD TO WORKING WITH THE CITIZENS OF RURAL AMERICA AS THEY FACE THE 21ST CENTURY.

THANK YOU.

## NATIONAL ASSOCIATION OF DEVELOPMENT ORGANIZATIONS

### STATEMENT OF MICHAEL AUBE, PRESIDENT, EASTERN MAINE DEVELOPMENT CORP.

Senator **BURDICK**. The next witness will be Michael Aube, president, Eastern Maine Development Corp., National Association of Development Organizations.

Mr. **AUBE**. Thank you, Mr. Chairman. I am Michael Aube. I am president of the National Association of Development Organizations as well as president of Eastern Maine Development Corp. in Bangor, ME. I want to thank you, Mr. Chairman, for inviting NADO to be represented at these hearings today. Our members are aware of the leadership that you are providing toward a better understanding of the needs of rural communities.

We are pleased to take this opportunity to comment on these challenges facing rural America, and particularly, the financial needs of programs which promote economic development and diversification throughout rural America.

Our organization, NADO, was founded in 1967 by a group of economic development districts to encourage creation and retention of jobs in rural and small metropolitan areas. Today, our members are multicounty planning and development organizations, as well as other State and local agencies, which help local governments and the private sector work together on business, community, economic, and rural development programs.

We have a small Washington staff and a strong grass roots network. NADO carries out a number of information, training, and services. Our members serve rural and small metropolitan areas throughout the country. In the areas where our members work, they are concerned about the economic well being of a substate region rather than a single jurisdiction.

For many communities, these development districts staffs provide the only professional assistance to government, business, and citizens in the field of economic development. By working cooperatively through development districts, local governments and the private sector can maintain and create jobs with a minimum of interference from Washington and a maximum local participation.

Development districts have become an essential part of the institutional infrastructure in much of rural America. For small metropolitan rural communities, the Economic Development Administration, the Appalachian Regional Commission, Farmers Home Administration, and the Small Business Administration are Federal programs which have been of the greatest value.

Since FmHA appropriations are the responsibility of this committee, we will try to focus our testimony today on that program. We believe that the Federal Government has a responsibility to encourage, in fact, to foster economic development in our communities. The fact that Federal funding for rural development has been cut by 74 percent since 1980 has resulted in grave damage to small towns in rural America.

Not all communities are equally endowed with economic resources, and the effects of broad macroeconomic policies do not fall evenly across this land. While many big cities and major metropolitan areas are now experiencing an urban revival, thanks, in part, to Federal investments through programs like the redevelopment block grant and the urban development action grant development programs, most rural areas remain in an economic recession.

For small metropolitan rural communities, the most valuable Federal programs are those which make possible planning and technical assistance, infrastructure, such as water and waste disposal grants and encouragement for the financing of small businesses. One Federal agency which is authorized to provide such assistance is the Farmers Home Administration within the Department of Agriculture.

Today, we ask you to maintain fiscal year 1988 levels for funding of Farmers Home community development programs. We also ask you to restore funding to the vital rural economic development programs, which have not been funded under the present administration, namely, business and industry grants and planning and technical assistance grants in section 111.

We also had a prepared statement which we have provided to the committee. I would like to spend just a moment talking a bit about a real live situation and how these programs can work. We have here a can of blueberries, raw blueberries from Maine. It resulted in a community, Machias, Maine, of roughly 2,000 people; unemployment rate 13 percent in 1983. A textile mill closed its doors and left and moved down south. Two hundred fifty jobs were lost immediately.

With the help of our organization in Maine, we were able to work with a naturalized immigrant, an entrepreneur, who developed ways to increase the productivity of the raw blueberry crop as well as developing a new technology for canning. We provided management assistance to put together a team. We provided an EDA loan to that company, and Farmers Home Administration in 1984 provided a $1 million loan.

In 1985, that company received only a $20,000 contract from Pillsbury for some of its blueberries. Today, that company now has an annual contract of over $6 million a year from Pillsbury alone; has received the national award for excellence in quality of production of products by Pillsbury, and now has 300 year-round jobs at that facility.

Maine raw blueberry allowed the community of Machias, ME, to continue to survive as a community with its culture and its heritage. Were it not for FDA and the Farmers Home program, that community would have lost any opportunity at all. We thank you for your time, and we would welcome the opportunity to answer any questions.

Senator BURDICK. Thank you very much. Many have come to recognize that the viability of rural America depends on new directions and initiatives. Are you aware of the new priority initiatives of the Extension Service's USDA? It would appear that these initiatives might help meet some of the job creation you have suggested.

Mr. AUBE. I am somewhat familiar in working with our Extension Service in Maine. I think it is important to maintain a relationship with the multilocal government jurisdictions. I think it is very important to provide that partnership, and we should look toward existing delivery mechanisms in trying to build cooperative ventures that way to try to solve some of these issues.

Senator **Burdick**. Do you oppose the administration's budget request for FmHA generally?

Mr. **Aube**. We would propose existing levels. We would like to see increases, obviously. The 74 percent cuts that have taken place by this administration in the last 7 or 8 years have been very dramatic and have had adverse impacts. I would propose continuation of the Farmers Home program.

Senator **Burdick**. Why are water and waste disposal loans and grants so important?

Mr. **Aube**. The absence of water in many of our communities and a system to bring water from one part of the community to the other make it absolutely critical that if you don't have an infrastructure in place, those of us in local jurisdictions cannot convince the private sector to come into those areas without that infrastructure.

That is a public responsibility. Many communities are working toward ways of establishing partnerships to solve some of these problems. But were it not for water and waste disposal systems, rural areas wouldn't be able to grow. We can't attract a business to our area unless we can provide those services.

Senator **Burdick**. Thank you very much.

Mr. **Aube**. Thank you, Senator.

[The statement follows:]

## STATEMENT OF MICHAEL AUBE

Mr. Chairman, members of the Subcommittee on Agriculture, Rural Development, and Related Agences, I am Michael W. Aube, President of the National Association of Development Organizations (NADO), and also President of the Eastern Maine Development Corporation, Bangor, Maine.

I would like to thank you, Mr. Chairman, and the ranking minority member, Mr. Cochran, for inviting NADO to be represented at these hearings today. Our members are aware of the leadership you are providing toward a better understanding of the needs of rural communities. We are pleased to take this opportunity to comment on the challenges facing rural America and particularly the financial needs of programs which promote economic development and diversification throughout our great nation.

### NATIONAL ASSOCIATION OF DEVELOPMENT ORGANIZATIONS

NADO was founded in 1967 by a group of economic development districts to encourage the creation and retention of jobs in rural and small metropolitan areas. Today our members are multi-county planning and development organizations, as well as other state and local agencies, which help local governments and the private sector work together on business, community, economic and rural development programs. With a small Washington staff and a strong grassroots network NADO carries out a number of information, training and service functions.

NADO members serve rural and small metropolitan areas across the country. In the areas where our members work, they are concerned about the economic well-being of a substate region rather than a single jurisdiction. For many communities, these development district staffs provide the only professional assistance to governments, businesses and citizens in the field of economic development. By working cooperatively through development districts, local governments and the private sector can maintain and create jobs with a minimum of interference from Washington and maximum local participation. Development districts have become an essential part of the "institutional infrastructure" in much of rural America.

For small metropolitan and rural communities, the Economic Development Administration (EDA), Appalachian Regional Commission (ARC), Farmers Home Administration (FmHA), and Small Business Administration (SBA) are the federal programs which have been of the greatest value. Since FmHA appropriations are the responsibility of this committee, we will focus our testimony on these programs.

### CONTINUING PROBLEMS IN THE RURAL ECONOMY

The general economic recovery of the past several years has bypassed many rural areas. In each region of the country the metropolitan areas are outperforming the rural areas. A recent report issued by the Appalachian Regional Commission highlights the continuing distress of most rural areas, even when neighboring urban counties enjoy propsperity.

Some of the findings reported in the study include:

* "The economy of rural America is based primarily on non-agricultural employment." In rural counties there is a greater dependency on manufacturing than agriculture, and even a majority of farm families depend heavily on non-farm jobs for their livelihood.

* "Unemployment in rural America remains consistently higher than the national average." After an unprecedented period of economic growth, official national unemployment figures have fallen dramatically to 5.6 percent. In rural counties, however, unemployment is officially over 9 percent. Too often in the collection of data, the part-time, seasonal, or agricultural employment of many rural citizens is overemphasized, and underemployment of large numbers of rural people is not discussed.

* "Poverty has remained consistently higher than the national average." While one-fourth of the nation's people reside in rural America, 38 percent of the nation's poor live there. In urban areas the poverty rate hovers around 12 percent but in rural areas it exceeds 18 percent.

* "Outmigration is increasing again after it had reversed itself in the 1970s." Rural areas are losing population at record-setting rates, and in many instances it is the young adults — the brightest and the best — who leave to find reliable employment.

For NADO members from Maine to Mississippi these statistics and generalizations become real individuals, businesses, families, and communities in their regions. Facing these hard realities, the professional staff of development districts works with local elected officials, private sector entrepreneurs and non-profit instutitions to enable local communities to create employment and enhance their quality of life.

The report Rural Economic Development in the 1980s by the Economic Research Service (ERS) of USDA discusses many of the other barriers to rural economic development. Such problems include transportation, lack of health care, lower educational attainment, unavailability of investment capital, and inability to compete in the expanding service sector.

Rural workers usually travel farther to their jobs and normally without the benefit of public transportation. With deregulation has come the decline or loss of airline service to many small cities. Rural highways have received less federal funding in this decade. The loss of revenue sharing and the declining value of tax roles have meant that local governments are less able to maintain or improve infrastructure such as roads and bridges.

Recent years have also witnessed the disappearance of many hospitals in rural counties. Hospitals are not only a source of health care but also a major employer and a key factor in attracting new business to an area. The high rate of rural poverty and the numbers of uninsured workers add to the fiscal dilemmas of rural hospitals. Finally, insufficient medical manpower is a serious concern for many small city and rural areas.

The level of educational attainment in some rural parts of America is significantly lower than in urban areas. Particularly in the rural South, there is a high rate of high school drop-outs and fewer college educated adults. For new enterprises to develop in any area, the level of education and adaptability of the labor force is a key factor. Thus, a more educated and versatile group of potential workers may attract new employers with better paying jobs. Presently a great many of the manufacturing jobs in rural America are low-skill and low-wage positions.

The shortage of venture capital in small cities and towns of America is another serious impediment to economic development. Many rural banks have failed and others are burdened with agricultural lending. The recent trend toward loan guarantees on the part of the federal government does not help the situation because the money simply is not present in many rural communities to be loaned even with a guarantee. EDA-funded revolving loan funds, for example, need to be replenished and expanded if small businesses are to start and succeed in these localities.

The explosion of service sector jobs in our economy has largely by-passed rural counties. Those rural counties located close to major cities or enjoying an influx of retirees have attracted service sector jobs. But in the more remote areas of the country the population is too small and scattered to attract service sector jobs. Another barrier to the expansion of service sector employment is the need for better telecommunications infrastructure in rural America so that the information technologies are fully available.

In short, many of the problems faced by rural America have grown worse during the 1980s, creating in our midst a "second nation" where significant numbers of Americans lack employment or education or other basic ingredients of the American way of life.

## THE NEED FOR FEDERAL INVESTMENT IN RURAL AMERICA

We believe that the federal government has a responsiblity to encourage, in fact to foster, community development and economic diversification in both rural and urban areas. The fact that federal funding for rural development has been cut 74 percent since 1980 has resulted in grave damage to small town and rural America. Not all communities are equally endowed with economic resources and the effects of broad macro-economic policies do not fall evenly across the land. While many big cities and major metropolitan areas are now experiencing an urban revival, thanks in part to federal investments through programs like the Community Development Block Grant (CDBG) and Urban Development Action Grant (UDAG) programs, most rural areas remain in economic recession.

For small metropolitan and rural communities, the most valuable federal development programs are those which make possible planning and technical assistance, infrastructure (such as water and waste disposal grants), and encouragement for the financing of small businesses. One federal agency which is authorized to provide such assistance is the Farmers Home Administration in the Department of Agriculture. Today we ask that you maintain fiscal year 1988 levels of funding for FmHA community development programs. We also ask that you restore funding to the vital rural economic developoment programs which have not been funded under the present Administration, namely Business and Industry grants and Planning and Technical Assistance Grants known as section 111.

For your reference we have attached a chart which compares federal budget allocations for rural development programs from Fiscal 1980 to 1988. You will note that the 1988 funding for all non-agricultural FmHA programs is approximately one-third the amount authorized in 1980. But the true picture is even worse: only $112.5 million of the current fiscal year money is available as grants for water and waste disposal or fire protection for the numerous rural communities which desperately need these programs.

## CONCLUSION

In summary, the major problems of rural and small town America include unemployment, poverty, outmigration, loss of tax revenues to provide services, shortage of venture capital, and need for infrastructure improvements. To remedy these problems we believe that the priorities for Fiscal Year 1989 funding should be:

Grants to locally based regional organizations to provide planning and management assistance for local governments and small businesses in rural areas as provided in section 111.

Grants and loans for necessary infrastructure and related community facilities in rural counties and communities.

Investment in Business and Industry Grants to help provide capital and leverage private funds to create jobs which in turn will reduce poverty and generate tax revenues.

Mr. Chairman, we ask that you and the members of the Subcommittee continue to provide funding for the Farmers Home Administration rural programs in Fiscal 1989. These funds are of vital importance to thousands of small rural communities across the country who are working with the private sector to maintain and create new jobs. FmHA rural programs were created in response to patterns of economic distress which unfortunately persist in many regions. We appreciate the support of Congress for the modest continuation of FmHA funding in the past and thank the Chairman and members of the Subcommittee for this opportunity to testify.

FEDERAL BUDGET COMPARISON, FY 1980-1988, RURAL AND RELATED DOMESTIC PROGRAMS (Millions of Dollars)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | Proposed 1989 |
|---|---|---|---|---|---|---|---|---|---|---|
| DEPARTMENT OF AGRICULTURE | | | | | | | | | | |
| FmHA | | | | | | | | | | |
| Water & Waste Disposal Grants | 290.0 | 200.0 | 125.0 | 300.0 | 90.0 | 115.0 | 109.4 | 109.4 | 109.4 | 75.0 |
| Water & Waste Disposal Loans | <700.0> | <750.0> | <375.0> | <600.0> | <270.0> | <340.0> | <325.4> | <330.3> | <330.3> | <250.0> |
| Community Facility Loans | <240.0> | <260.0> | <126.2> | <130.0> | <130.0> | <115.0> | <95.7> | <95.7> | <95.7> | <50.0>> |
| Business & Industry Grants | 10.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Business & Industry Loans | <1073.0> | <741.0> | <300.0> | <300.0> | <300.0> | <61.4> | <95.7> | <95.7> | <95.7> | <95.7> |
| Fire Protection Grants | 3.5 | 3.5 | 3.3 | 3.3 | 3.3 | 3.3 | 3.1 | 3.1 | 3.1 | 0.0 |
| Planning Grants (Sec. 111) | 6.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rental Housing Loans | <881.3> | <842.5> | <953.7> | <882.0> | <940.0> | <983.3> | <669.9> | <669.9> | <554.9> | 0.0 |
| Resource Cons. & Develop. (RC&D) Loans | <1.8> | <2.0> | <0.9> | <1.2> | <4.0> | <0.5> | <1.9> | <1.2> | <1.2> | 0.0 |
| SCS | | | | | | | | | | |
| RC & D Projects | 32.0 | 34.0 | 26.5 | 30.7 | 26.0 | 26.3 | 25.0 | 25.0 | 25.1 | 25.0 |
| APPALACHIAN REGIONAL COMMISSION | | | | | | | | | | |
| Total Non-Highway Programs | 126.6 | 119.9 | 62.1 | 83.0 | 49.1 | 59.3 | 32.7 | 29.4 | 37.6 | 0.0 |
| Research, T.A., Other | 2.6 | 1.9 | 2.8 | 2.0 | 2.5 | 4.0 | 1.0 | 1.0 | 2.6 | 0.0 |
| Local Development Districts | 5.7 | 6.0 | 4.5 | 4.0 | 4.0 | 3.5 | 2.0 | 2.0 | 3.2 | 0.0 |
| Jobs & Private Investment | n.a. | n.a. | n.a. | 54.0 | 27.3 | 28.4 | 12.2 | 20.5 | 25.0 | 0.0 |
| Distressed Counties Program | n.a. | n.a. | n.a. | 15.0 | 17.6 | 17.8 | 3.2 | 5.9 | 6.0 | 0.0 |
| Health Finish-up Program | n.a. | n.a. | n.a. | 8.2 | 4.1 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 |

FEDERAL BUDGET COMPARISON, FY 1980-1988, RURAL AND RELATED DOMESTIC PROGRAMS (Millions of Dollars)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | Proposed 1989 |
|---|---|---|---|---|---|---|---|---|---|---|
| DEPARTMENT OF COMMERCE | | | | | | | | | | |
| EDA | | | | | | | | | | |
| Planning Grants | 33.6 | 23.9 | 24.7 | 27.0 | 27.0 | 26.0 | 25.0 | 24.0 | 23.0 | 0.0 |
| Public Works | 260.7 | 257.9 | 129.9 | 229.9 | 170.0 | 156.0 | 107.2 | 122.4 | 126.5 | 0.0 |
| Economic Adjustment Grants | 85.9 | 12.6 | 33.0 | 33.0 | 33.0 | 33.0 | 24.9 | 24.0 | 24.7 | 0.0 |
| Technical Assistance | 30.7 | 26.4 | 7.9 | 7.5 | 8.0 | 8.2 | 7.7 | 7.0 | 6.7 | 0.0 |
| Research & Evaluation | 4.2 | 2.7 | 1.6 | 2.0 | 2.0 | 2.0 | 1.9 | 1.0 | 1.2 | 0.0 |
| Direct Loans | 116.4 | 54.1 | 0.0 | 17.0 | 18.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Program Funds | 531.5 | 377.6 | 197.1 | 316.4 | 258.1 | 226.0 | 166.6 | 180.4 | 182.0 | 0.0 |
| Loan Guarantees | <425.0> | <425.0> | <150.0> | <20.0> | <150.0> | <150.0> | <150.0> | <150.0> | <150.0> | 0.0 |
| Salaries & Expenses | 40.8 | 39.7 | 25.0 | 27.6 | 27.9 | 28.4 | 24.9 | 25.0 | 24.7 | 0.0 |
| REGIONAL DEVELOPMENT (Title V) | 109.4 | 47.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ENVIRONMENTAL PROTECTION AGENCY | | | | | | | | | | |
| Construction Grants | 4900.0 | 5100.0 | 3400.0 | 2430.0 | 2435.0 | 2400.0 | 1774.2 | 2361.0 | 2304.0 | 1500.0 |
| DEPARTMENT OF HEALTH AND HUMAN SERVICES | | | | | | | | | | |
| Community Serv. Block Grant(80-81 CSA) | 550.5 | 542.3 | 340.3 | 375.1 | 348.0 | 368.1 | 320.6 | 335.0 | 382.3 | 310.0 |
| National Health Service Corp. | 77.5 | 92.3 | 88.4 | 88.3 | 65.3 | 59.7 | 58.5 | 47.0 | 51.0 | 35.0 |
| Rural Development Loan Fund | 20.0 | 7.7 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT | | | | | | | | | | |
| Comm. Dev. Blk. Grant-CDBG (30% rural) | 3862.0 | 3694.6 | 3456.0 | 4456.0 | 3468.0 | 3468.0 | 2990.0 | 3000.0 | 2880.0 | 2480.0 |
| Urban Dev. Act. Grant-UDAG (25% rural) | 675.0 | 675.0 | 473.7 | 440.0 | 440.0 | 440.0 | 315.0 | 225.0 | 216.0 | 0.0 |
| Rehabilitation Loans (312) | 214.2 | 132.3 | 49.9 | 44.9 | 132.1 | 0.0 | 72.0 | 200.0 | 0.0 | 150.0 |
| DEPARTMENT OF INTERIOR | | | | | | | | | | |
| State Outdoor Rec. (LWCF) Grants | 318.6 | 293.5 | 46.4 | 112.2 | 115.2 | 102.4 | 46.0 | 32.7 | 16.6 | 0.0 |
| State Historic Preservation Grants | 43.8 | 51.7 | 23.3 | 46.9 | 22.0 | 21.1 | 19.5 | | 23.7 | 0.0 |
| Payment in Lieu of Taxes (BLM) | 108.0 | 108.0 | 91.3 | 96.1 | 105.0 | 102.9 | 99.9 | 105.0 | 105.0 | 105.0 |
| DEPARTMENT OF LABOR | | | | | | | | | | |
| JTPA State Block Grant (1980 CETA) | 3342.0 | n.a. | n.a | 2179.3 | 3300.0 | 1886.2 | 1783.1 | 1840.0 | 1809.5 | 1809.5 |
| Summer Youth (1980 CETA) | 2338.5 | n.a. | n.a | 824.2 | 824.5 | 824.5 | 635.9 | 750.0 | 718.2 | 718.2 |
| Dislocated Worker (80 Trade Adj. Asst) | 1664.4 | n.a. | n.a | 110.0 | 262.7 | 235.3 | 95.7 | 200.0 | 287.2 | 0.0* |
| Comm. Service Empl. for Older Amer. | 266.9 | 277.1 | 282.0 | 319.5 | 317.3 | 326.0 | 311.9 | 336.0 | 331.3 | 336.0 |
| SMALL BUSINESS ADMINISTRATION | | | | | | | | | | |
| 503 (504) Cert. Development Co. Loans | <250.0> | <100.0> | <150.0> | <250.0> | <350.0> | <450.0> | <383.0> | <373.0> | <450.0> | <450.0> |
| Small Bus. Investment Co. Loans | 148.0 | 160.0 | 134.1 | 159.9 | 250.0 | 256.0 | 239.0 | 233.0 | 233.0 | 186.0 |
| Minority Ent. SBIC Loan- Direct | 32.5 | 41.2 | 27.3 | 25.7 | 41.0 | 41.0 | 39.0 | 39.0 | 36.0 | 0.0 |
| General Business Loans (Guaranteed) | <3000.0> | <2804.7> | <1516.5> | <2094.4> | <2600.0> | <2660.0> | <2491.0> | <2473.0> | <2421.0> | <2392.0> |
| General Business Loans- Direct | 218.7 | 205.1 | 114.8 | 85.5 | 108.3 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Handicapped Loans(Guaranteed) | <0.3> | <1.7> | <0.8> | <1.6> | <5.0> | <5.0> | <5.0> | <5.0> | <5.0> | 0.0 |
| Handicapped Loans- Direct | 19.9 | 25.0 | 13.1 | 14.9 | 20.0 | 24.0 | 14.0 | 15.0 | 13.0 | 0.0 |
| Economic Opportunity Loans (Guarant'd) | <24.5> | <20.4> | <13.4> | <30.5> | <60.0> | <60.0> | <57.0> | <56.0> | <40.0> | 0.0 |
| Economic Opportunity Loans- Direct | 63.2 | 49.0 | 21.8 | 16.5 | 45.0 | 45.0 | 24.0 | 24.0 | 19.0 | 0.0 |
| Energy Loans (Guaranteed) | <11.3> | <7.3> | <1.3> | <3.2> | <15.0> | <15.0> | <14.0> | <14.0> | <5.0> | 0.0 |
| Energy Loans- Direct | 14.4 | 6.7 | 1.2 | 0.4 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Veterans Loans- Direct | 0.0 | 0.0 | 0.0 | 6.4 | 25.0 | 25.0 | 19.0 | 19.0 | 17.0 | 0.0 |
| Management Assistance | 22.1 | 19.5 | 29.4 | 33.1 | 39.5 | 39.1 | 19.2 | 19.3 | 18.0 | 17.3 |
| Sec. 501 Program | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SBDC Program | 3.9 | 8.1 | 11.6 | 15.4 | 28.5 | 28.5 | 33.5 | 35.0 | 40.0 | 16.2 |
| Sec. 502 Dev. Company Loans- Direct | 44.7 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| TENNESSEE VALLEY AUTHORITY | | | | | | | | | | |
| Economic & Comm. Resources | 12.4 | 11.2 | 16.9 | 18.1 | 20.8 | 22.5 | 14.0 | 11.7 | 14.0 | 0.0 |
| DEPARTMENT OF TRANSPORTATION | | | | | | | | | | |
| Local Rail Service Assistance | 82.6 | 47.4 | 28.0 | 22.0 | 25.2 | 23.2 | 19.3 | 25.3 | 16.5 | 0.0 |
| Sec. 18 Mass Transit Grants-100% rural | 57.1 | 73.2 | 74.3 | 77.2 | 79.2 | 81.5 | 63.0 | 75.0 | 64.6 | 67.0* |
| Aircraft Purchase Loans | <650.0> | <429.0> | <201.5> | <102.5> | <8.7> | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Appalachian Highway Systems | 228.7 | 218.2 | 107.6 | 116.1 | 110.0 | 104.3 | 61.7 | 71.8 | 67.0 | 0.0 |
| Secondary (Rural) Highway System | 772.9 | 443.1 | 387.0 | 602.3 | 500.0 | 500.0 | 650.0 | 385.0 | 475.0 | 400.0 |
| Payments Air Carriers(Local Air Serv.) | 95.0 | 114.5 | 86.1 | 52.1 | 46.3 | 46.3 | 28.0 | 0.0 | 28.5 | 0.0 |
| DEPARTMENT OF TREASURY | | | | | | | | | | |
| General Revenue Sharing | 6854.9 | 4569.9 | 4566.7 | 4566.7 | 4566.7 | 4566.7 | 4100.0 | 0.0 | 0.0 | 0.0 |

NOTES: * Estimate/Legislation to be submitted
Brackets <> indicate Loan Guarantee Authority

## NATIONAL RURAL WATER ASSOCIATION

### STATEMENT OF CLARK CRONQUIST, BOARD OF DIRECTORS, NORTH DAKOTA RURAL WATER ASSOCIATION, AND PRESIDENT, NATIONAL RURAL WATER ASSOCIATION

Senator Burdick. The next witness is Clark Cronquist, board of directors, North Dakota Rural Water Association and president of the National Rural Water Association.

Mr. Cronquist, it is a pleasure to see you again.

Mr. Cronquist. It is a pleasure to be here, sir. I have some testimony, Mr. Chairman. Thank you for allowing me as president of the National Rural Water Association and as a director of the North Dakota Rural Water Association to appear before your committee today. I want to express our deepest appreciation for your help in providing a significant increase in our rural water circuit rider program last year, which has enabled us to expand the program to the 48 contiguous States.

We also thank you for your support in the Farmers Home Administration rural water grant and loan program. We are here today to request your continued support and that of the committee for these two very important rural programs.

Specifically, we are requesting funding for the FmHA Rural Water and Sewer Grant program at $109 million and the loan program at $330 million and funding for the circuit rider technical assistance program at $3 million to allow for the use of circuit riders in areas of the country affected by the most serious environmental concerns.

The FmHA rural water grant and loan program has been the backbone of rural water in this country. Fifteen years ago, my family and most other rural residents in my area hauled water. Now the great majority have safe, clean drinking water. We live in a farm area of North Dakota where well water was bad and a serious concern to the health of our families and livestock.

FmHA grants and loans allowed our system to be built and to serve over 1,200 families to date. This same story is repeated in rural area after rural area in every State of this country.

The second important program that your committee has made possible is the rural water circuit rider program. Because of your personal interest, and this committee's action last year, there are circuit riders now helping small water systems in 48 States.

Circuit riders are critical to the safe and cost-efficient operation of small part-time operator systems. Over the past year, the circuit rider in our State has made 488 visits to small water systems, and there were 17,833 visits made throughout the Nation.

In most States, significant amounts of money have been saved as a result of an aggressive water leak detection program by the circuit riders who provided onsite guidance to rural water systems and equipment for them to use for the purpose of identifying and repairing leaks. In one State, over $200,000 has been saved each year for the past 4 years.

This same program has produced similar benefits from Minnesota to Mississippi and from Oregon to Florida. While this is but one small example of the grassroots effectiveness of the circuit riders, it is typical of the impact that circuit riders are having on improving

SDWA compliance, preserving water sources, saving operating costs and strengthening the overall performance of all rural water systems.

The third important point is that the FmHA grant and loan program and circuit riders are extremely important and help small systems meet the growing complexities of the Safe Drinking Water Act. This year, there are 83 new EPA listed contaminants that these systems must test for, an increase of 800 percent, and most small systems do not have the financial or management capability to do this. They count on the FmHA loan program and circuit rider program to help out.

We would also like to request your help in ending the sale of FmHA rural water and sewer loans in the Government's asset sales. We were told that no more than $583 million would be sold this year, but now the administration intends to sell $861 million in loans. Fortunately, the House and Senate Budget Committees do not agree with this level and have not made that sale as part of their budget assumptions. We would appreciate your help in making sure these additional loans are not sold.

In conclusion, I want to thank you very much for your help last year. The FmHA funds are the backbone of the rural quality of life in each of your districts. We urge you to maintain these programs in next year's Farmers Home appropriations. If you have any questions, I would be happy to try to answer them.

Senator **Burdick**. Thank you. Tell me something about these asset sales.

Mr. **Cronquist**. Well, the asset sales, are—What happened is the Omnibus Budget Reconciliation Act of 1986 mandated some sales of FmHA loan assets, and they were sold on Wall Street last fall at about a 54-percent discount. Now we are not being governed but overseen by a credit corporation, General Electric Capital Corporation, instead of Farmers Home Administration. We don't think that is going to change much, but it has led to a great amount of confusion in the rural areas as to why our assets were sold to a private corporation.

We were paying our bill; everything was going fine. Why aren't we still with FmHA?

Senator **Burdick**. Did you ever find an answer?

Mr. **Cronquist**. No, I haven't found an answer yet. We are trying, but we do have the option to buy them back ourselves or to refinance the loan through private industry right now. The problem with that is that if we do that, we may be taxable on the discounted amount, so we are caught. We either gamble, and if Congress doesn't do something to alleviate the problem, then we will have to pay taxes, or we can sit still and we will be bought up by Wall Street again this fall.

Senator **Burdick**. I see the problem.

Mr. **Cronquist**. It is a problem. I don't think it is going to change much. I don't think the sale to Wall Street is really going to endanger the rural water systems' operation or anything, because they can't change the rules; however, rural people get pretty excited when somebody says, "Hey, you are going to be sold on Wall Street."

Senator **Burdick**. Thank you very much.

Mr. **Cronquist**. Thank you very much, sir.

[The statement follows:]

## STATEMENT OF CLARK CRONQUIST

Mr. Chairman, thank you for allowing me, as President of the National Rural Water Association and as a Director of the North Dakota Rural Water Association, to appear before your Committee today. We want to express our deepest appreciation for your help in providing the significant increase in our rural water circuit rider program last year which has enabled us to expand the program to the forty-eight contiguous states. We also thank you for your support in the Farmers Home Administration rural water grant and loan program. We are here today to request the continued support of you and the Committee for these two very important rural programs.

Specifically, we are requesting:

- funding for the FmHA rural water and sewer grant program at $109 million and the loan program at $330 million
- funding for the Circuit Rider technical assistance program at $3.0 million to allow for the use of circuit riders in areas of the country affected by the most serious environmental problems.

We are requesting your continuing help because rural water systems are confronting more problems in this increasingly complex world. The ever expanding Environmental Protection Agency's Safe Drinking Water Act (SDWA) regulations place new requirements on the monitoring and testing of the water quality in small rural water systems. The reduction in FmHA grant and loan funds over the past five years has seriously limited the amount of assistance available to improve the quality of small systems and to expand water service to more marginal rural areas. In addition, as many systems become older there is an increasing need to upkeep and maintain rural water systems in order to protect the enormous investment made by FmHA and local rural communities. On top of this over 4,000 FmHA loans were sold to the private market severing the long-standing FmHA institutional relationship with approximately 2,400 rural water systems. Because of this sale, these systems are without the traditional FmHA field level technical assistance support and are going through a period of adjustment caused by these changed circumstances.

The renewed funding of the FmHA water and sewer grant and loan program and the continuation of the grass roots rural water circuit rider technical assistance program will go a long way in helping resolve these deep concerns. The grant and loan funding is critical, because it is the only viable source of financing available to the majority of non-profit rural water systems. In addition, rural water districts do not have the legal standing to float bonds, levy taxes or seek other types of public financing. Private financing has seldom been an alternative because of its high cost and consistent unavailability. With a repayment rate on water and sewer loans of over 99.6%, this is probably the soundest government loan assistance program in the nation. It is also the reason that these loans were included in the government loan asset sale.

The Environmental Protection Agency continuously cites the FmHA rural water grant and loan program as the major source of funding assistance to help small rural systems meet SDWA requirements. In response to a House Committee question EPA responded:

> "The Agency has met with the FmHA in an effort to ensure that adequate financial support is and will

continue to be available to small water systems to meet additional requirements imposed by the Safe Drinking Water Act."

In effect, we have one federal agency imposing regulatory requirements and counting on another agency (FmHA) to provide funds to support compliance. While we may not like the way this came about, it-is the way it is in rural areas and the FmHA grant and loan program is critical to SDWA compliance. The second area of our concern is the assistance available to help improve the operation and maintenance of existing rural water systems. Most rural water systems were developed because neighbors got together and decided that something had to be done about the poor quality or lack of water. These people formed water districts, signed up customers, borrowed funds from the only source available - FmHA - and set up a small water system operation with part-time personnel.

These systems are as varied in their size and structure as rural America itself. Many users are still small "mom and pop" operations; others have grown from a few hundred households to several thousand while many small towns are having serious operational problems with old and worn out water systems. The common problem among these systems is the need to improve the quality of the water while continuing to provide water in the most cost effective manner possible.

What has evolved from this need is the rural water circuit rider technical assistance program now operating in forty-eight states, thanks to the action of this Committee last year. A full-time rural circuit rider, working under the oversight of each state rural water association, is available to provide hands-on assistance and guidance to all rural water systems in the state regardless of size or problem. This allowed many rural systems to steadily improve the efficiency of their operation and the quality of the water delivered. In FY 1987 the North Dakota Circuit Rider program assisted rural water systems with 488 Technical Assistance Contacts throughout the state -- an average of 41 technical assistance contacts per month. Circuit Riders have saved significant amounts of money in preventing water loss, reducing the need for replacement of pipes, pumps and other equipment and in working with systems to set adequate water rates to provide funds for continuous preventive maintenance.

Finally, we want to express our continued concern with the recent sale of the $1.9 billion in FmHA community facility loans. We realize that this was necessary last year in order to meet federal budget deficit reduction targets. While the President's budget increased the level of loan sales by $300 million in his budget request for FY 1989, the House and Senate Budget Committees have not supported these sales. We urge you to restrict this increase in proposed sales in your final appropriations bill.

During this past year the Circuit Riders have visited over 17,000 rural water systems to provide hands-on help. The new state circuit riders in the additional twelve states have just begun to expand their activities. We believe that having a border to border program will have a dramatic impact on the upgrading of small water systems nationwide. One special request we are making is that you consider increasing the funding for the circuit rider program to $3.0 million a year to provide for additional circuit riders in high environmental risks areas. The SDWA requires EPA to list 83 new contaminants and rural water systems will bear the burden of the cost of complying with the new regulations. The Circuit Riders are the only real in-the-field help to solve these problems.

In closing, we want to again thank you for your past support of rural water and to urge you to maintain the funding level for the FmHA rural water loan program at the $330 million level and the FmHA grant program at $109 million.

## AMERICAN HOME ECONOMICS ASSOCIATION

### STATEMENT OF DR. GAIL HOUSE, EXECUTIVE DIRECTOR

Senator BURDICK. Our next witness is Dr. Gail House, executive director, American Home Economics.

Ms. HOUSE. Good afternoon, Mr. Chairman.

Senator BURDICK. Good afternoon.

Ms. HOUSE. Members of the subcommittee, I am Gail House, the executive director of the American Home Economics Association, and I do request that my testimony be entered into the record. I represent 26,500 women and men at the American Home Economics Association, which is a national nonprofit professional society with a rich history of active involvement in crucial issues affecting the family.

We in the association thank the Appropriations subcommittee for its interest in and appreciation of and support for adequate funding for one of the Department of Agriculture's most valued programs, the Cooperative Extension Service.

As a home economist advocate for the Extension Service, I am very much concerned with the current administration's fiscal year 1989 Federal budget proposals submitted to Congress earlier this year.

Among the proposed policy changes, a reduction in funding of agricultural research and services has been proposed. This proposal would place 1989 funding for the Cooperative Extension Service below 1988 levels.

At a time when more of the nation's families are in need of assistance with child care, long-term health care, nutrition, homelessness and economic stability, a reduction in funding for Cooperative Extension is not in the best interest of our families and our nation. I urge increased rather than decreased Federal support for fiscal year 1989.

Family in all its forms and society are inextricably related. The problems of the family become the problems of the community and the nation. Just as those of the community and nation become those of the family. This simple fact must be recognized if social strategies are to be made simultaneously effective, balanced, qualitative and directed toward the full utilization of human resources.

The well-being of American families is essential to national strength, since the values that underlie national stability are forged by families. Pressure brought to bear on families as a result of social and economic changes has made them an object of much concern. Radical social changes which have occurred in recent years have increasingly rendered family issues vital to the health of American society.

In particular, rural people are searching for new employment opportunities and higher incomes. Youth are leaving the community. Retail businesses are closing their doors on Main Street. Families are making a transition from agriculture to other ways of life.

Since its emergence from sections 1 and 2 of the original Smith-Lever Act of 1914, the mission of the Cooperative Extension Service has been education to strengthen American families through the application of research-based knowledge to problems of home and family life.

While the focus of early programs was the reduction of rural poverty and the establishment of standards to enhance the quality of life, cooperative extension programs have, over time, reflected a variety of pressure points of American family life. Hence, programs on entrepreneurship, the prevention of adolescence pregnancy, care for the aging and school-aged child care have come into being.

Today's programs, for example, focus on issues such as improving family finances by controlling debt, increasing savings, and becoming self sufficient, managing stress, improving the quality and the quantity of water, and increasing feelings of self-worth.

Thus, through its dynamic home economics programs, Cooperative Extension strengthens families by interpreting research-base knowledge and communicating it to families so that it can be used to develop skills needed for economic stability and for emotional and fiscal health.

I am convinced that in order to address the critical needs of today's families, each component of the home economics research and extension role is absolutely necessary. The benefits of shared Federal and State funding for extension programs are readily apparent. Every Federal dollar is matched by $2 of State and local funds.

When this shared funding is juxtaposed with the volunteer time given by Extension agents and local community volunteers, a formidable research and educational model emerges. So strong and effective is this model that it has become one of the nation's greatest exports, having been adapted by developing countries, as well. Further, Extension Service training of the trainer model uses professionals to teach paraprofessionals and volunteers, who then go on to teach others.

Without adequate funding for the leadership development programs, this steady stream of competent volunteers trained through cooperative extension is not likely to continue. The resources from the local communities will not long be sufficient.

As well, another program, the Expanded Food and Nutrition Education Program, which, in 1987, operated in 50 States, American Samoa, Guam, Micronesia, Puerto Rico and the U.S. Virgin Islands uses Extension-trained paraprofessionals to teach nutrition to low-income families.

In 1987 alone, over 2,000 trained paraprofessionals taught those in the Expanded Food and Nutrition Education Program to adults. More than 220,000 adults and more than one-half million youth have participated in this program.

The monetary value of the volunteer contributions as reported by 32 States was $1.5 million. These paraprofessionals and volunteers performed other valuable functions, such as referring participants to other Extension programs such as the Women, Infants and Children Program, which the House Select Committee on Children, Youth and Families has termed one of the Nation's most cost-effective.

Thus, this program enhances the effectiveness of other programs whose mission is to improve nutrition and health. We must never forget that despite new technology in health, communications and computers, rural life still has challenges and rigors which must be met. As professionals associated with mission-oriented research and educational programs, home economists are refocusing efforts to meet the needs of rural as well as urban America.

Research and extension efforts relative to home-based businesses are providing some of the all-farm income needed to maintain economic stability in rural America. We urge the subcommittee to support the following recommendations: One, an increase in financial support for the home economics component of the Cooperative Extension Service through the Smith-Lever funds under section 14 of the 1985 farm bill; and two, full funding for the expanded Food and Nutrition Education Program.

Mr. Chairman, the American Home Economics Association has often presented testimony on behalf of the Cooperative Extension Service, and we appreciate the opportunity to do so again. The Association urges you to support its recommendations. We also want to thank you for receiving us as you are our Friend to the Family Award in 1986, and we are very pleased to be before you today.

Senator BURDICK. Thank you for your contribution. Thank you very much.

[The statement follows:]

## STATEMENT OF DR. GAIL HOUSE

Mr. Chairman, members of the Subcommittee, and colleagues: I represent the 26,500 women and men of the American Home Economics Association, a national non-profit professional society with a rich history of active involvement in crucial issues affecting the family. We, of the Association, thank the Appropriations Subcommittee for its interest in, appreciation of, and support for adequate funding for one of the Department of Agriculture's most valued programs, the Cooperative Extension Service.

As a home economist advocate for the Extension Service, I am very much concerned with the current Administration's FY 1989 Federal Budget Proposals submitted to Congress earlier this year. Among the proposed policy changes, a reduction in funding for agricultural research and services has been proposed. This proposal would place 1989 funding for the Cooperative Extension Service below 1988 levels. At a time when more of the nation's families are in need of assistance with child care, long-term health care, nutrition, homelessness, and economic stability, a reduction in funding for Cooperative Extension is not in the best interest of our families and our nation. I urge increased--rather than decreased--federal support in FY 1989 (1).

Family, in all its forms, and society are inextricably related. The problems of the family become the problems of the community and nation; just as those of the community and nation become those of the family. This simple fact must be recognized if social strategies are to be simultaneously effective, balanced, qualitative, and directed toward the full utilization of human resources. "The well-being of American families is essential to national strength since the values that underlie national stability are forged by families. Pressure brought to bear on families as a result of social and economic changes has made them an object of much concern"(2). Radical social changes which have occurred in recent years have increasingly rendered family issues vital to the health of American society. In particular rural people are searching for new employment opportunities and higher incomes; youth are leaving the community; retail businesses are closing their doors on Main Street, and families are making a transition from agriculture to other ways of life (3).

Since its emergence from Sections 1 and 2 of the original Smith-Lever Act of 1914, the mission of the Cooperative Extension Service has been education to strengthen American families through the application of research-based knowledge to problems of home and family life (4). While the focus of early programs was the reduction of rural poverty and the establishment of standards to enhance the quality of life, Cooperative Extension programs have over time reflected a variety of pressure points of American family life. Hence, programs on entrepreneurship, the prevention of adolescent pregnancy, care for the aging, and school-age child care have come into being. Today's programs, for example, focus on issues such as improving family finances by controlling debt, increasing savings, and becoming self-sufficient; managing stress; improving the quality and quantity of water; and increasing feelings of self-worth.

Thus, through its dynamic home economics programs, Cooperative Extension strengthens families by interpreting research-based knowledge and communicating it [to families] so that it can be used to develop skills needed for economic stability, and for emotional and physical health (5). I am convinced that in order to address the critical needs of today's families, each component of the home economics research and Extension role is absolutely necessary.

Return on Taxpayer Investment

The benefits of shared federal and state funding for Extension programs are readily apparent. Every federal dollar is matched by two dollars of state and local funds. When this shared funding is juxtaposed with the volunteer time given by extension agents and local community volunteers*, a formidable research and education model emerges. So strong and effective is this model that it has become one of the nation's greatest exports, having been adapted by developing countries.

The network of resources available from and facilitated by federal monies has provided research models, and educational materials and techniques which have been adapted and implemented by many states. State sharing of instructional materials is common: those developed in one state's programs are often adapted by other states. As witness, Oregon Cooperative Extension, with a small grant from the private sector, developed a series of educational materials to be used by mid-life adults with aging parents. The series, titled "When Dependency Increases," helped families increase their knowledge and understanding of the aging process and offered decision-making options in the areas of housing, financial management, and the health of care-takers. A multi-media series, it is now being used by twenty-five state Extension programs, and several national organizations and agencies. This multiplier effect provides significant payoff for taxpayer investment in human and financial resources, and it is often five to ten times the initial resource output. Thus, the value of the investment expands exponentially.

Further, Extension's "training of trainer" model uses professionals to teach paraprofessionals and volunteers, who then go on to teach others. Without adequate support for its leadership development programs, this steady stream of competent volunteers trained through Cooperative Extension is not likely to continue. The resources from the local communities will not long be sufficient.

This point is best revealed through the following: In 1987, 29 states, the District of Columbia, and Puerto Rico had programs on leadership and volunteer development. In Arkansas, 39,000 volunteer leaders provided information to over 175,000 individuals through Extension Homemakers Clubs. In Kentucky in 1986, 48,000 volunteer leaders were trained in 1,300 workshops. In Oregon, 1,450 leaders taught food preservation, food purchasing, and parenting to their neighbors. Thus, these leaders, and others like them, considerably expand the home economics effort and extend educational programs in all areas.

While the work of the extension home economist is legendary, serving families throughout the life cycle, their greatest accomplishments have been in programs targeted at the nation's most vulnerable families. For example, in the absence of a comprehensive child care policy, extension home economists have conceptualized, designed, and implemented programs which provide children in self-care with age-appropriate skills to enable them to more effectively handle their unsupervised time while home alone.

o In Illinois, Dr. Christine Todd, Extension Specialist from the University of Illinois Cooperative Extension Service, has conducted extensive research and published numerous studies on children and self-care. She has developed Operation Safe Kids, a personal and home safety curriculum for children and parents, which is being used not only in Illinois, but nationwide.

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* A 1985 program impact analysis indicated that volunteers contributed 51 hours of time to Extension work for every hour of agent time.(6)

o In North Carolina, Dr. Cynthia Johnson, Human Development Specialist at the North Carolina State University Agricultural Extension Service, has implemented several innovative programs for latchkey children. She worked with 4-H groups to develop a parents' guide for determining when children are mature enough for self-care. Dr. Johnson also developed 4-H after-school enrichment programs for children ages 9 to 12.

And Extension home economists are among those professionals who provide timely health education for families most in need. In New York City, Nilda Tirado, Coordinator for the Expanded Food and Nutrition Program of the Cornell Cooperative Extension Service, has conducted hundreds of nutrition education programs for low-income families. She has developed nutrition education resources and radio programs for Spanish-speaking families and has trained more than forty professional home economists to serve as volunteer nutrition consultants to the Head Start Program.

o Martha Copenhaver, Extension Home Economist in Arlington County, Virginia, has helped hundreds of Asian refugee and Hispanic families with their family planning needs. Copenhaver arranged to have family planning materials translated into Khmer (Cambodian), Laotian, and Vietnamese, and designed programs to help the refugee community make informed decisions about child spacing and family size. The materials and strategies she has used have been disseminated to other professionals who serve Asian and Hispanic refugees nationwide.

## The Expanded Food and Nutrition Education Program

The Expanded Food and Nutrition Education Program (EFNEP), which in 1987 operated in the fifty states, American Samoa, Guam, Micronesia, Northern Marianas, Puerto Rico, and the U.S. Virgin Islands, uses Extension-trained paraprofessionals to teach nutrition to low-income families. In 1987 alone, 2,213 trained paraprofessionals taught the EFNEP to adults. More than 220,000 adults and 534,000 youth have participated in the program as EFNEP recipients. The monetary value of the volunteer contribution as reported by 32 states was $1.5 million. These EFNEP paraprofessionals and volunteers perform other valuable functions, such as referring participants to other extension programs (e.g. the Women, Infants, and Children [WIC] program which the House Select Committee on Children, Youth, and Families has termed one of the nation's most cost effective.) Thus, EFNEP programs enhance the effectiveness of other programs whose mission is to improve nutrition and health (7).

Many EFNEP paraprofessionals who teach low-income families were themselves in similar circumstances. It is a visible and effective program with a proven record of success, as these individuals earn their GED, two- and four-year degrees, successfully compete in the job market, and become taxpayers. The movement from welfare dependency to increased independence facilitates family stability and personal self-esteem. Every class of high-school drop-outs costs the U.S. $240 billion in lost revenues and taxes over their lifetime. Extension programs such as EFNEP recapture some of these individuals and restore them to productive lives.

## Cooperative Extension Priorities

And while all these new and urgent programs have been designed and implemented, the appropriate traditional and vital programs for rural women have been carried on. We must never forget that despite new technology in health, communications, and computers, rural life still has challenges and rigors which must be met. As professionals associated with mission-oriented research and educational programs, home economists are re-focusing efforts to meet the needs of rural America. Research and extension efforts relative to home-based businesses are providing some of the off-farm income needed to maintain economic stability in rural America. Family strengths programs are being redesigned to address current issues in child care, substance abuse, and stress and suicide (for youth and adults) among others. Consumer issues associated with nutrition and health are receiving renewed effort. Home economists are involved in a variety of efforts to ensure that the housing, health care, and nutrition issues of older Americans are dealt with in ways to assure quality lifestyles in rural America. The Cooperative Extension Service conveys by its very name a precious heritage that should not be diminished. Its long history represents government activity at its best--educating and helping--but not directing, citizens. The efforts have benefited the society as a whole as well as rural America.

## Recommendations

We urge that the subcommittee support the following recommendations:

(1) An increase in financial support for the home economics component of the Cooperative Extension Service through the Smith-Lever funds under Section 14 of the 1985 Farm Bill; and

(2) Full funding of the Expanded Food and Nutrition Education Program (EFNEP).

The American Home Economics Association has often presented testimony on behalf of the Cooperative Extension Service, and we appreciate the opportunity to do so once again. The Association urges you to support its recommendations. I will be pleased to respond to your questions, and to provide additional information as necessary.

## References

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4. Smith Lever Act of May 8, 1914, ch. 79, 38 Stat. 372, 7 U.S.C. 341 et seq.
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6. Wisconsin Cooperative Extension Service. National Impact Study of Leadership in Extension. (Madison: University of Wisconsin, 1985.)
7. U.S. Department of Agriculture, Extension Service. Expanded Food and Nutrition Education Program. Extension Service Update: Food, Nutrition, and Health. (Washington, D.C.: February, 1988.)

## UNIVERSITY OF NORTH DAKOTA

### STATEMENT OF DWAYNE A. OLLERICH, ASSOCIATE DEAN

**Senator BURDICK.** Entering the hearing room this afternoon is a group of students from the big city of Wyndmere, ND. I would like to welcome all you students who are back there in the back rows, and I trust your stay in Washington will be good.

Our next witness will be Dwayne Ollerich, associate dean, University of North Dakota. This has been North Dakota Day today.

**Mr. OLLERICH.** It seems like it, Senator. Thank you very much for giving me an opportunity to appear before your subcommittee. We have met many times before, but I think this is the first time I have appeared before you.

I have submitted a complete statement for the record of this committee, and I will just be going through and summarizing what our request is of this group. We are asking support for a model 5-year cooperative program between the North Dakota State Extension Service and the University of North Dakota. This model program will permit us to develop and implement outreach educational programs for rural family members, displaced farmers and other local individuals who have an interest in pursuing alternate career opportunities without relocation.

The amount we are requesting for year one of this program is $1.1 million, which would provide for acquisition of much-needed high-priced equipment. The model project will develop a telecommunication capacity within the State so that future development of other educational programs can be carried out. The initial investment by the National Cooperative Extension system will, therefore, represent an important contribution to the future development and sustenance of rural North Dakota.

The model program will consist of outreach programs in nursing, medical technology, and social work. We have chosen these three programs because a major goal of the Extension Service is the maintenance of jobs and income in the rural economy. Health care represents one of the largest economic contributors. In addition, health services delivery strongly influences decisions to maintain residency in a rural area. Health services are also an economic growth factor for the future.

In addition, there currently exists a nurse shortage of about 100,000 registered nurses. Federal estimates anticipate a shortage of 390,000 Bachelor of Science prepared nurses by 1990. The shortage represents an acute problem for rural areas, which will only be worse as the national nurse shortage continues.

In the areas of social work, a marked demand also exists. Many rural hospitals and nursing homes have difficulty in attracting social workers. A substantial demand for qualified, adequately trained laboratory professionals also exists in rural hospitals and health care facilities.

A satellite uplift system will be installed at the University of North Dakota in Grand Forks, and a portable uplink will be purchased for the North Dakota State University Extension Service in Fargo. The intent is to make resources readily available to all educational outreach efforts within the State, greatly enhancing the overall capacity of the State to respond to the needs of rural communities.

Twelve one-way downlink stations will be located in towns throughout the State. The stations will be located at publicly available resource centers within the communities. It is anticipated that other downlink sites will be added in the future, since the cost of one-way downlink stations is quite small once the uplink is available.

We can implement the program of medical technology beginning the first semester of 1988. It is possible to initiate this program due to the availability of a preexisting continuing education programs which can be adapted to a degree program, and to the presence of an educational telephone network that links the School of Medicine to many sites throughout the State.

Social work will begin instruction in January 1989, and nursing will be able to offer their first course via television in the summer of 1989.

We will also begin an ongoing needs assessment to determine the number of potential students by geographic area to, second, projected job opportunities for selected health care professionals in the areas of the State, and finally, to determine needs in other educational areas for which programs can be developed to provide onsite education and employment.

We believe our projected program fits very neatly into two of the Extension Service's national initiatives; namely, building human capital and revitalizing rural America. Under the framework of building human capital, such issues as the facilitation and career preparation and transition from one career to another for rural families is one of the issues within that initiative.

Also, developing leaders and preparing use for responsibility. Under revitalizing rural America, you are well aware that North Dakota is one of the most agriculturally dependent States in our six-State area, with approximately 74 percent of our counties depending, for the majority of their income, on agriculture or agriculture-related industries.

Since 1980, North Dakota State retail sales have decreased 16.9 percent. In towns less than 10,000 in population, this decrease has been 31 percent. Employment patterns reflect the retail sales, except the percentage is smaller.

In addition, we are seeing some changes in populations with towns less than 10,000 decreasing in the last few years by 2.1 percent of their population. So with that in mind, Senator, we submit this proposal to you and request funding by this Appropriations Committee.

Senator **Burdick**. Thank you very much. Welcome to Washington. I am pleased that you could interrupt your work at the University of North Dakota to be with us. In your statement, you mention that the project you are proposing would be a model outreach effort. Could such a model have application in other disciplines and in other States?

Mr. **Ollerich**. Yes, indeed, in terms of the educational facilities of the State working together with the Extension Service to deliver educational programs to remote areas.

Senator **Burdick**. I am aware that North Dakota has a tremendous need for more rural health care professionals. Would this program help meet that need?

Mr. **Ollerich**. Yes, it would indeed.

Senator **Burdick**. How?

Mr. **Ollerich**. It would meet that need by helping individuals who live in rural areas complete their education without needing to relocate to central institutions such as the University of North Dakota or North Dakota State University; therefore, enhancing their ability to live in an area and to work in an area at the same time or to be educated in an area at the same time.

Senator **Burdick**. Thank you very much.

Mr. **Ollerich**. Thank you, Senator.

[The statement follows:]

## STATEMENT OF DWAYNE A. OLLERICH

### Summary

The North Dakota State University Extension Services will work on a collaborative basis with programs in Nursing, Medical Technology and Social Work at the University of North Dakota to develop and implement educational outreach programs for farm families and other displaced workers in North Dakota.

The funds requested for Year 01 will be used to: 1) implement an educational outreach program in Medical Technology beginning first semester 1988; 2) implement an educational outreach program in Social Work beginning second semester 1989; 3) implement an educational outreach program in Nursing over television during the summer of 1989; 4) obtain equipment for uplink and downlink sites; 5) obtain personnel to administer and develop the project; and 6) initiate an ongoing needs assessment to determine educational needs and job opportunity throughout the State of North Dakota.

**Program Title:** A Cooperative Model Program for Educational Outreach in the Health and Social Sciences

**Institutions:**
1) North Dakota State University Extension Service
2) University of North Dakota
    a) Center for Rural Health Services, Policy and Research
    b) School of Medicine
    c) College of Nursing
    d) College for Human Resources Development
    e) Division of Continuing Education

**Request, Year 01:** $1,137,875

### Testimony

1. How does the proposed programs meet the national initiatives of the Cooperative Extension Systems?

The model rural educational outreach in health science program described in this proposal fits uniquely into two of the Cooperative Extension Services National Initiatives--Building Human Capital and Revitalizing Rural America. A critical issue identified with the Building Human Capital Initiative includes Facilitating Career Preparation and Transition. The challenge for the Cooperative Extension System is to put the considerable information and education resources of the Extension system to work on critical issues that maintain rural viability. The proposed program will help do that and it also illustrates that two universities can combine their resources in accomplishing a major educational effort that will make a differnece in the lives of many people. The educational outreach programs will also provide an educational base that will facilitate other issues of the National Initiatives, namely "Preparing Youth for Responsibility" and "Developing Leaders".

2. Given the fact that North Dakota is the most agriculture dependent state in the Northern Great Plains, what has been the extent of economic decline in North Dakota over the last few years?

Many areas of rural America have experienced a substantial reversal of fortunes during the 1980s. The previous decade had been a period of economic and population growth for most rural areas, but the 1980s have seen rural growth rates slip substantially behind those of metropolitan areas. Rural areas dependent on such resource-based industries as agriculture, mining, and forestry have been particularly hard-hit (Ekstrom and Leistritz, 1988).

Reductions in the output and employment of a dominant industry can have a myriad of effects on local communities. Immediate loss of jobs and income may stimulate some persons to leave the area in search of better opportunities. A significant loss of human resources through outmigration can seriously impair the ability of a community to mobilize its residents and resources to address its problems. Faced with declining income and population in their trade areas, local retail businesses and service firms may be forced to make severe adjustments, and local governments may find it difficult to remain solvent and maintain services (Murdock and Leistritz, 1988; Leistritz and Ekstrom, 1986).

Social effects also occur in an economically declining area. The sense of despair and helplessness felt by many individuals and families as they experience the loss of their livelihood and social ties has become prevalent. Continuing economic decline and outmigration can lead to a degradation of the overall social and institutional fabric of a community.

Perhaps nowhere in the country have the effects of rural economic decline been experienced more keenly than in the Dakotas and adjacent portions of neighboring states. The states that comprise this region, often referred to as the Upper Midwest or Northern Great Plains, are characterized by sparse populations and economies that are heavily dependent on agriculture and the energy industry. Sharp declines in the prices of agriculture and energy products since 1980 have had substantial direct and indirect effects on these states (Coon and Leistritz, 1987). These effects have been further exacerbated by the fact that much of the region's limited manufacturing base is also directly linked to agriculture (e.g., farm machinery manufacturing).

Rural areas of North Dakota have been particularly hard-hit. Retail sales (adjusted for inflation) decreased 16.9 percent on a statewide basis from 1980 to 1986. In towns of less than 10,000 population, the decrease was 31 percent. Employment patterns reflect those of retail sales except that the percentages are smaller. Total employment in North Dakota increased only 6 percent from 1980 to 1986, but this reflects a growth of 11.2 percent in counties with a town of more than 10,000 people and a decline of -0.5 percent in counties with no town that size. A few major trade centers are increasingly dominating the state's economy and the rural areas are experiencing outmigration, population decline, and extreme difficulty in providing services to the people left behind.

3. What other benefits would this educational outreach program provide for rural North Dakota?

The issue of multiple job-holding among farm families has been debated. The phenomenon was viewed as a transitional step of either entering or leaving farming. However, it is now recognized that multiple job-holding allows farm families to peruse a chosen lifestyle, maintain a rural residence, or meet other personal and financial goals. In many instances multiple job-holding is providing sufficient additional resources to allow farm families to continue farming. This program will assist farm families in developing skills and careers that can augment financial resources.

One major goal of the Cooperative Extension Service is the maintenance of jobs and income in the rural economy. Health care represents one of the largest economic contributors. In addition, health services delivery strongly influences decisions to maintain residency in a rural area. Health services is also an economic growth factor for the future. The health care professions represent one of the avenues open to rural revitalization. There currently exists a nurse shortage of approximately 100,000 registered nurses. Federal estimates anticipate a shortage of 390,000 Bachelor of Science-prepared nurses by 1990. The shortage represents a particularly acute problem for rural areas which will only become worse as the national nurse shortage continues. In the area of social work, a marked demand also exists. Many rural hospitals and nursing homes have difficulty in attracting social workers. Finally, a substantial demand for qualified, adequately trained laboratory professionals also exists.

## Proposed Program

**Organizational Resources.** The North Dakota State University Extension Service proposes to work on a collaborative basis with various health and social sciences programs of the University of North Dakota to develop a model outreach education program. The collaborative effort will forge an alliance of two major resources within North Dakota as a model for the nation. The North Dakota State University Extension Service will serve as the lead agency in developing and implementing the proposed model program.

This demonstration project represents the first step in a concerted effort by the Cooperative Extension Service and the University of North Dakota to develop outreach educational programs for farmers and other displaced workers in the state. Other educational and retraining efforts will be initiated to meet other manpower needs in rural areas. The demonstration project will develop a telecommunications capacity within the state so that future development of other educational programs can be carried out. The initial investment by the National

Cooperative Extension System will, therefore, represent an important contribution to the future development and sustenance of rural North Dakota.

Program Participants. Participants in the training program would be rural farm family members, displaced farmers and/or other local individuals who have an interest in pursuing alternative career opportunities without relocation. Local extension agents and representatives from the health sciences program will identify interested individuals for participation.

Instruction Methodology. The intent is to provide educational experience which does not dislocate the participants to central educational institutions thereby allowing them to continue working on the farm or local community while participating in the program. The rural participants will be able to contribute to the local economy, and maintain a satisfactory quality of life. Program participants will receive the majority of their training through the use of interactive video. Some onsite work is required due to the nature of training for the health professions.

A satellite uplink system will be installed at the University of North Dakota in Grand Forks, and a portable uplink will be purchased for the North Dakota State University Extension Service in Fargo. The intent will be to make resources readily available to all educational outreach efforts within the state, greatly enhancing the overall capacity of the state to respond to the needs of rural communities.

Twelve one-way downlink stations will be located in towns throughout the state. The proposed downlink stations would be located in Bottineau, Devils Lake, Jamestown, Williston, Valley City and in six more towns determined during the ongoing needs assessment. The downlink stations will be located at publicly available resource centers within the communities. In addition, it is anticipated that other communities will be added in the future since the cost of the one-way downlink station is quite small once the uplink is available.

Program Implementation. Medical Technology is ready to initiate a program beginning first semester 1988. It is possible to initiate this program due to the availability of a pre-existing continuing education program which can be adapted to a degree program, and to the presence of an educational telephone network that links the School of Medicine to many sites throughout the state. Social work will begin instruction in January of 1989 either over the educational telephone network or via interactive video. Nursing will be able to offer their first course by television by summer 1989. The Nursing Program also will work with community colleges for the offering of support courses not available through correspondence.

Additional activities during Year 01 will include: 1) acquistion, installation and testing of interactive video equipment, 2) the hiring and training of personnel, 3) the development of educational material, and 4) development and dissemination of recruitment material.

The Cooperative Extension Service, in conjunction with The Center for Rural Health, will conduct an ongoing needs assessment to determine: 1) the number of potential students by geographic area; 2) projected job opportunities for the selected health care professions areas; and 3) needs in other educational areas for which programs can be developed to provide on-site education and employment. Other specific elements of program implementation that relate to the three training modules are as follows:

1. Medical Technology. The offsite curriculum will be essentially the same as that offered on campus at the University of North Dakota, leading to a Bachelor of Science degree in Medical Technology. All students will have completed a pre-requisite of two years in liberal arts education. Twenty students will be enrolled during Year I. The program will use interactive video and teleconference networking in offering the coursework. A major portion of the coursework will be accomplished through clinical training clerkships in health facilities in or near the student's home community. A specialized laboratory course will be offered on the campus and will be of short duration. Twelve onsiste training weeks will be required to complete the curriculum. Internship training will also be provided at selected sites in the state.

2. Nursing. Twenty to thirty students will be selected. Students selected will have completed at least one year of college level credit prior to acceptance. Approximately one-half of the remaining required coursework for the Bachelor of Science degree in nursing is available through correspondence study or local community colleges. Theoretical coursework for the nursing program will be accomplished through a combination of clinical faculty employed within the rural community, faculty from the main campus, and nurse preceptors. The remainder of the clinical training experience must be provided at the central campus due to the nature of nursing education. It is anticipated that a maximum of 20 weeks away from home over a period of three years will be required of students participating in the program. Two sites will initially be used for the nursing component, Devils Lake (75 miles from the central campus) and Williston (340 miles). It is important to note that no other nursing education opportunities exist in the proposed sites.
3. Social Work. Any student who has completed the general, two-year liberal arts education requirements will be considered for entry into the program. A large number of individuals will be eligible for the program since an excess number of students with training in home economics are available in rural communities. These students can retrain into social work where the demand is higher. The curricular content of the offsite program will be the same as the on-campus program, thus insuring accreditation. In addition, to the use of the downlink and teleconference network system, the department will use approved local agencies and institutions for clinical training. Approximately 50% of the clinical training will occur in the field. The department has a well developed field instruction program in place. In addition to field training, approximately 12 weeks of on-campus training will be required. The on-campus portion of the training experience will be divided into two-week segments to avoid disruption the student's home situation. The program will be initiated in Dickinson, Devils Lake, Valley City and Williston. Other sites will be considered based on available sources.

Management of Program. The North Dakota State University Extension Service will provide the overall management and organizational structure for the program. The Extension Service will recruit, orient and monitor the progress of participating students. The Center for Rural Health of the University of North Dakota will serve as the coordinating agency for the health sciences programs collaborating in the project. In addition to the health sciences programs, the Office of Communications and Division of Continuing Education at the University of North Dakota will be involved in the effort. Other suitable management groups will be established.

## References

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Ekstrom, Brenda L., and F. Larry Leistritz. 1988. Rural Community Decline and Revitalization. New York: Garland Publishing, Inc.

Leistritz, F. Larry, and Brenda L. Ekstrom. 1986. Interdependencies of Agricultural and Rural Communities: An Annotated Bibliography. New York: Garland Publishing, Inc.

Murdock, Steve H., and Larry Leistritz, eds. 1988. The Farm Financial Crisis: Socioeconomic Dimensions and Implications for Rural Areas. Boulder, Colorado: Westview Press.

BUDGET - Year 01

I. ND Cooperative Extenstion Service

| | |
|---|---|
| A. Personnel | |
| Project Director (100%) | 38,000 |
| Field Coordinator (100%) | 30,000 |
| Admin Coordinator (100%) | 15,000 |
| Secretarial (100%) | 12,000 |
| Fringe (25%) | 23,750 |
| B. Operations | |
| Travel | 7,500 |
| Communication | 600 |
| Office | 2,500 |
| Office Equipment | 1,500 |
| Student Stipends | 0 |
| Student Tuition | 0 |
| SUBTOTAL | 130,850 |

II. Center for Rural Health

| | |
|---|---|
| A. Personnel | |
| Education and Media Coordinator (50%) | 17,500 |
| Secretary | 12,000 |
| Fringe (25%) | 7,375 |
| B. Operations | |
| Travel | 2,500 |
| Communications | 600 |
| Office | 6,000 |
| Data Processing | 1,000 |
| Instructional | 0 |
| Consultants | 12,500 |
| Office Equipment | 1,500 |
| System Equipment | 685,000 |
| Telecom: Satellite | 0 |
| Telecom: Telephone | 5,000 |
| FCC Licensure | 20,000 |
| SUBTOTAL | 770,975 |

III. Medical Technology

| | |
|---|---|
| A. Personnel | |
| Instruct/Coord. (100%) | 36,000 |
| Instructor (50%) | 17,000 |
| Fringe (25%) | 13,250 |
| B. Operations | |
| Travel | 2,000 |
| Communications | 600 |
| Office | 1,000 |
| Instructional | 2,000 |
| Contracted Services | 30,000 |
| Office Equipment | 1,500 |
| Telecom: Satellite | 0 |
| Telecom: Telephone | 15,000 |
| SUBTOTAL | 118,350 |

IV. Nursing

| | |
|---|---|
| A. Personnel | |
| Faculty/Coord. (50%) | 12,500 |
| Fringe (25%) | 2,500 |
| B. Operations | |
| Travel | 2,000 |
| Communications | 600 |
| Office | 1,000 |
| Instructional | 0 |
| Contracted Services | 15,000 |
| Office Equipment | 1,500 |
| Telecom: Satellite | 25,000 |
| Telecom: Telephone | 0 |
| SUBTOTAL | 60,100 |

V. Social Work

| | |
|---|---|
| A. Personnel | |
| Faculty/Coord. (50%) | 10,000 |
| Fringe (25%) | 2,500 |
| B. Operations | |
| Travel | 2,000 |
| Communications | 600 |
| Office | 1,000 |
| Instructional | 0 |
| Contracted Services | 15,000 |
| Office Equipment | 1,500 |
| Telecom: Satellite | 25,000 |
| Telecom: Telephone | 0 |
| SUBTOTAL: | 57,600 |
| TOTAL ALL CENTERS: | 1,137,875 |

## NATIONAL ASSOCIATION OF CONSERVATION DISTRICTS

### STATEMENT OF ERNEST C. SHEA, EXECUTIVE VICE PRESIDENT

Senator **BURDICK**. Our next witness is Ernest C. Shea, executive vice president, National Association of Conservation Districts.

Mr. **SHEA**. Good afternoon, Mr. Chairman. My name is Ernie Shea, and I am the executive vice president of the National Association of Conservation Districts. We have submitted a written statement for the record, and with your permission, I would like to just highlight some of those points.

Senator **BURDICK**. That will be agreeable.

Mr. **SHEA**. Mr. Chairman, our organization represents 3,000 local soil and water conservation districts in the country and 15,000 district officials who serve on district boards. Districts are local, independent political subdivisions of State government that coordinate and carry out resource management programs at the local level. They provide leadership, also, for many of the Federal programs that are administered by the Department of Agriculture.

This afternoon, I would like to just briefly highlight some of the recommendations that we have made for the natural resource agencies within the Department of Agriculture, and I would call your attention to the funding resolution that is attached to my written testimony.

The dollar figures that are reflected in this resolution were approved by our members at our national convention this past February. With regard to the Soil Conservation Service, Mr. Chairman, we are seeking an increase in total appropriations from $676 million to $756 million. We recognize that that is a large increase in this era of budget restraint, but we also would point out that there has been a very substantial and large increase in the workload that this agency has.

As you know, the Food Security Act added many new responsibilities to the Soil Conservation Service. Our districts are actively involved with the Service, implementing the new Food Security Act conservation programs. We support those programs, but frankly, we are very much concerned with regard to the impact that they are having on the traditional baseline programs of the agency.

For the past 2 years, we have been fighting efforts by the current administration to dismantle these base or traditional programs. They have suggested that these programs are either not needed or are no longer effective and that we should be concentrating most of the available financial resources toward these new Food Security Act programs, Sodbuster, Swampbuster, and the Conservation Reserve Program.

Mr. Chairman, this is a position that American Conservation Districts cannot support. We want to see these new Food Security Act programs succeed, but we do not want to see them succeed at the expense of the traditional baseline programs. There is definitely a need for both of these programs.

Our experience has shown us that the only way to really successfully address natural resource problems at the local level is to ensure that we have got a broad-based approach and that we are not concentrating only on highly erodible cropland.

There are many other programs that address other activities such as forest or rangeland management, flood control, rural development and wetland enhancement. Those are also very important activities.

Mr. Chairman, last year, your committee provided an increase for the conservation operation line item. We certainly appreciate that. Those dollars were put to excellent use at the field office levels, something we strove for, to make sure they were not used at the national or State level. Without those funds, I am very confident that we would have seen a massive redirection of Soil Conservation Service's field work force to several States, to the highest Food Security workload States. That would have left many States without a field level, without an effective field level staff in the Soil Conservation Service.

As much as this increase helped, however, Mr. Chairman, we are facing what we consider to be a monumental workload, one that we don't feel has been adequately described by the administration officials who have testified before Congress this year.

Publicly, the administration is still saying they can handle it; they can get the job done; they can develop the conservation plans and support all the base programs. But from where we are sitting at the field level, it just doesn't quite add up, and we don't see how they can do it.

To give you an example, the Food Security Act will require the Agency to develop 800,000 conservation plans before January 1, 1990. To date, they have developed approximately 200,000. Twenty-eight months have passed since that title went into effect. We now have 20 months to go before that deadline date, and we still have 600,000 conservation plans to develop.

In addition to that, the agency also has to perform as many as one-half million wetland determinations. They have accomplished about 7 percent of those. They also have to develop conservation plans for the 20 million acres of additional land that has to go into the conservation reserve. In addition to that, they also have all these baseline programs that they have responsibility for supporting.

I guess the point I am trying to make here is that we just don't see how the existing resources that have been utilized by the agency are going to be enough to get the job done.

It is not that the current work force is not working hard. Deficiencies have improved dramatically, and the existing employees who are out there are working 110 percent; we have no doubts about that.

As a result of this, we are recommending that the funding level for conservation operations be increased from $443 million to $475 million. We also recommend, Mr. Chairman, that you reject the administration's proposed recommended funding levels for the other programs within the Soil Conservation Service, that being the river basin, watershed programs and the Great Plains conservation programs, and we would suggest the funding levels that we have included in our funding resolution.

I would point out the reason why we are calling for an increase in the watershed programs. That is as a result of the nonpoint source pollution workload that is also being added to the Soil Conservation Service at this time.

A quick comment about the ASCS cost-share programs, Mr. Chairman. We were disappointed again this year to see that the administration has proposed terminating these important programs. ACP, FIP and the Water Bank Program are necessary programs. They are important. Although they are not funded at the level that is needed, they certainly help.

We have recently received some figures from the USDA which indicate that the cost of implementing these conservation plans being developed for the Food Security Act is going to range from between $1.5 billion to $4 billion. Without cost-sharing, we don't think that it is either practical or fair to expect the farm communities to bear all those costs.

In closing, Mr. Chairman, I would also want to call your attention to the recommended funding level that we have suggested for the Cooperative Extension Service. The Extension Service has an important role to play with natural resource management programs. We think they need to be doing more. They indicate they would like to do more, but they do not have the resources to get out there and do the educational work that is required at this point in time.

We would suggest an increase in appropriations for those programs that fall within the natural resources area. Thank you very much, Mr. Chairman. I would be glad to answer any questions that you may have.

Senator **Burdick**. Thank you.

What is your overall impression of the implementation of the Conservation Reserve Program?

Mr. **Shea**. To date, Mr. Chairman, we are pleased with the progress that we have made given the resources that are available. There have been some problems, particularly in the Dakotas with regard to Swampbuster. I think as the agency slowly gets on top of the new rules and regulations that have been finalized, and as they get the word out to the local farming and ranching community, there will be pretty good support for the programs.

There are some people out there who are still apprehensive. I think a majority of the farmers and ranchers we work with—that once what they are going to have to do has been explained, they will be pretty supportive of the program. It takes that one-on-one contact—the technical assistance, going out to the farms, developing the conservation plan and helping the landowner to implement it.

That is the key to seeing success with these programs. The agency has been working on things like group planning processes, where they will bring 30 or 40 farmers and ranchers together to sit down and develop a conservation plan. Those things are helpful, but it still takes one-on-one contact.

So in general, at this point, we are pleased. Our biggest concern is the impact that it is having on all of the other responsibilities that the agency has, the ones that I mentioned earlier.

Senator **Burdick**. What area are you serving or working in?

Mr. **Shea**. Sir?

Senator **Burdick**. What area do you serve or work in?

Mr. **Shea**. Do I personally?

Senator **Burdick**. Yes.

Mr. **Shea**. I'm executive vice president of the National Association of Conservation Districts. We are the national organization that represents the 3,000 local soil and water conservation districts around the country. Districts work cooperatively with Federal, State, and local units of government delivering the services that are provided to the farm community. Conservation districts are the groups that approve the conservation plans that Federal agencies develop.

We are the group, our people are the ones who coordinate the delivery of services and set the priorities at the local level for what work is done first.

Senator **Burdick**. Then you actually work in each State?

Mr. **Shea**. That is correct, sir. Typically, in every county, there is a conservation district.

Senator **Burdick**. You mentioned Swampbuster. How is that coming?

Mr. **Shea**. If you had asked me a month or so ago, I would have said we were having some fairly serious problems, particularly in the Dakotas. SCS has been concentrating additional manpower into the States that have quite a few wetlands that could be subjected to Swampbuster. They have been going out and actually making wetland determinations and have been, I think, quieting down the concern that was developing or boiling, I guess you could say, in some parts of the country several months ago.

The biggest concern, in our opinion, that Swampbuster has is with the intent of Congress as to what wetlands are or are not covered under Swampbuster. In our judgment, Swampbuster was never intended to recapture agricultural land or wetlands that had been previously converted to agricultural use. In our judgment, and I think this is the intent of Congress, Swampbuster was never intended to cover wet spots in fields.

Unfortunately, there was a lot of misinformation that was delivered at the local level that Swampbuster may actually be used to go into a farm and stop the production of a crop on those wet spots in fields. Coming from North Dakota, sir, I am sure you have a much better appreciation than I do for what impact that would have there.

Senator **Burdick**. On the funding of that in North Dakota in the eastern part of the States, where we received some findings, I found that about 95 percent of the farmers were in compliance. They had drained properly.

Mr. **Shea**. That is correct.

Senator **Burdick**. And drained under previous authority.

Mr. **Shea**. The problem has developed when you get a Fish and Wildlife Service employee or an environmental group that is using a different definition of wetlands. They may go out on a Sunday afternoon and see a landowner do some ditch maintenance work or they may see someone planting in a wet spot in a field. They assume because there is standing water, that is automatically a wetland and that is where there has been a violation.

That is not what the definition under the Swampbuster statute was intended to cover, in our opinion. Now that SCS has been sending what they refer to as their SWAT teams out, which is just a concentration of technical people into the field to visit with the landowners to tell them, yes or no—this is or is not a wetland subject to Swampbuster—that has quieted down the agricultural community.

The environmental community, from what I have been hearing of late, still is not happy, because they think USDA is giving away the farm, so to speak, and they are allowing conversions of wetlands that they feel Swampbuster was intended to stop.

We still have some problems with the definition issue, but if USDA is allowed to continue to implement Swampbuster in the manner they are today in the Dakotas, we think that the farm community will accept the program and that we can get around the major problems. But they are going to need the support of Congress and their definition of Swampbuster.

Senator **Burdick**. What about that 5 percent I referred to, where there would be a clear violation that they used the land? Could that be set into some kind of a conservation program?

Mr. **Shea**. Right now, sir, if there is a violation of Sodbuster/Swampbuster, the individual who is violating that——

Senator **Burdick**. No, no, there is no violation yet. I am just saying at this point. Would you think about permitting them to elect to go into some conservation program? They haven't violated anything yet.

Mr. **Shea**. I see what you are saying. We would encourage that. If there is any question that there may be a violation or it may be borderline, the Conservation Reserve Program is an option. They may or may not qualify right now the way the program is structured. We would like to see the reserve program expanded to add in a component that would address environmentally-sensitive lands in addition to highly erodible lands.

Wet areas, fragile soils that may not meet the qualifications under the highly erodible land requirements are also very valuable and need protection. The key, in our mind, is that we have got to find an incentive driven program to provide some compensation to the farm community to help them retire these lands as opposed to trying to impose a mandatory regulatory approach whereby they would be forced to do so. That is not workable, in our opinion.

Senator **Burdick**. The surveys in North Dakota surprised a lot of people that there wasn't as much land subject to the Swampbuster as they first thought. Farmers have been very careful in their draining and have done it in a timely manner. As I say, fully 90 to 95 percent of the land was not affected.

Mr. **Shea**. What is surprising is that when you try to explain to an environmentalist or someone who doesn't understand agricultural conservation measures, that you have to drain soils to apply best management practices, conservation practices, they oftentimes are very surprised with that.

It just seems somewhat inconsistent to them that here you have to reduce moisture in a soil in order to apply, for instance, conservation tillage. In many parts of the country, unless you have proper water management, you can't control soil erosion, so they are very necessary functions. It is not just production or purely a production issue. It is a conservation issue, as well.

Senator **Burdick**. Thank you very much for your testimony.

Mr. **Shea**. Thank you, Senator.

[The statement follows:]

## STATEMENT OF ERNEST C. SHEA

Mr. Chairman, members of the Subcommittee, my name is Ernest C. Shea and I am the Executive Vice President of the National Association of Conservation Districts (NACD). I appreciate your invitation to testify before your subcommittee today.

NACD is the national organization representing the almost 3,000 soil and water conservation districts in this country and the more than 15,000 women and men who sit on district boards. Conservation districts coordinate and carry out a broad range of local, state and federal resource conservation programs. In the fifty years since the first conservation district was formed, they have provided local leadership to federal and state resource protection programs in addition to their own. This three-way partnership of all levels of government has resulted in a conservation program that is the best in the world. This year, districts will share their conservation ethic with more than two million cooperators. Our soil and water resources, the real strength of this nation, are protected and enhanced because of the leadership provided by these local officials.

I am here today to discuss NACD's recommendations for fiscal year 1989 funding levels for the Department of Agriculture's natural resources programs. These recommendations were developed by conservation district officials from all fifty states, U.S. Territories, and the District of Columbia. Our specific FY89 recommendations for USDA programs are contained in the NACD Funding Resolution attached to this testimony. This resolution was adopted by our members at their national convention this past February.

NACD firmly believes that the key to our past success has been a strong partnership between federal, state and local resource protection programs. Our own research has shown that state and local governments have been increasing both funding and technical personnel to implement these programs, demonstrating their value to the citizens of this country. Since 1980, state and local governments have increased their spending for soil conservation by 186% and increased their technical field personnel by 106%. The recommendations we are presenting today call for the federal government to maintain, and in some cases, strengthen the federal part of this three-way partnership in resource conservation.

### Soil Conservation Service

As you know, Mr. Chairman, the 1985 Food Security Act added many new conservation planning responsibilities for SCS to meet. Conservation district support for these programs was based on the premise that they would augment and enhance base conservation programs. For the past two years, this subcommittee has heard the Administration state that the only way to meet the Farm Bill program mandates was to abandon our base conservation programs. Mr. Chairman, as we stated last year, this position is unacceptable to our members.

A year ago, America's conservation districts came to this subcommittee asking for an increase in federal resources directed at soil and water conservation programs. You responded by providing additional funds for both FY87 and FY88. On behalf of all conservation district officials in America, I want to thank you for that assistance. Your actions have signaled that you believe as NACD does that the FSA conservation programs are but one part of a comprehensive national conservation program.

The increase in funding of the SCS Conservation Operations line item for the current fiscal year helped to avert a massive redirection of personnel and agency assistance. Without these new funds, we are certain that SCS would have had no choice but to transfer much of their technical workforce to meet FSA planning requirements. I want you to be assured that these funds were used to get conservation on the ground and that there has been an increase in the technical assistance available to the farm community.

However, the workload problems facing districts and SCS have not been fully solved. We still have at least 75% of the conservation plans required by conservation compliance to be completed. We question SCS's contention that they can complete the work facing them without increased appropriations. Our members feel that the agency will need $30 million above the FY88 appropriated level in FY89 if we are to meet FSA requirements without significantly affecting base conservation programs.

As of this date, we still have 600,000 conservation compliance plans which need to be developed. In addition, there will be about 20 million more acres going into the conservation reserve which will require conservation planning. With the increase in commodity prices, I believe we will see increased requests for conservation plans to meet sodbuster requirements. Also, the recent problems in North Dakota with the swampbuster program, which entailed 5,485 individual field determinations on the existence of wetlands, prove that nationally this program could require a great deal of technical time. I cite these statistics to demonstrate that if we are to have any hope of maintaining our base programs and servicing FSA requirements, the Conservation Operations budget needs to be increased.

The Administration has once again called for major reductions in all other SCS programs except Resource Conservation and Development. We do not understand, Mr. Chairman, why this administration has failed to hear the message you and your subcommittee continue to send them. At least we should be thankful that USDA has finally recognized that Congress greatly values the RC&D program.

We would request that this subcommittee once again reject the Administration's proposed budget for the River Basin Program, Watershed Planning, Watershed Operations and the Great Plains Conservation Program. These programs complement FSA programs, providing resource conservation opportunities to areas outside of just cropping regions. They provide much needed flood protection, increased recreational opportunities, and provide for potential economic development in our rural areas. Instead of decreasing funding as the Administration proposes, NACD would suggest funding these programs at the levels indicated in the attached chart.

I would call your attention to the fact that we have called for slight increases in the watershed related programs. Conservation districts recognize that one of the largest resource protection problems left to be dealt with is nonpoint source water pollution. While the national nonpoint source pollution management program is the responsibility of the Environmental Protection Agency, we feel there is an important role for USDA to play in getting the management plans placed on the ground.

Nonpoint pollution occurs when soil, nutrients and other contaminants move from the land into our water supplies. To correct this problem, we must keep the soil in its place, the very thing districts and SCS have been working on for the past fifty years. Conservation districts firmly believe that land-treatment watershed protection projects are the best solutions to this problem. We would urge you to provide enough funding to allow SCS, in cooperation with state and local governments, to begin now to identify affected watersheds and to develop watershed projects designed to reduce nonpoint source pollution.

As I mentioned earlier, USDA did not propose termination of the RC&D program for the first time in many years. I know that their rural development initiatives and those proposed by Congress are the cause of this reversal in position. However, if we are serious about supporting rural development, then we have to show it in some other manner than just words. We would urge you to increase funding of the RC&D program so that we can make some real progress in providing for a renewal of our rural economies.

## Agricultural Stabilization and Conservation Service

Once again this Administration has proposed elimination of all soil and water conservation cost-share programs. We have heard USDA say in testimony before Congress this year that this proposal is sound fiscal policy, that the programs are not needed. We strongly disagree with this assessment.

Conservation systems designed and implemented to meet conservation compliance requirements are going to entail an expenditure of funds by someone.

The current USDA position appears to assume that the farmer alone is responsible for paying the costs of providing the public with the benefits of soil erosion control and improved water quality. It seems this Administration expects the farm community to provide abundant, cheap food supplies; to continue to produce products for export, thus lowering our balance of trade; and to bear all of the costs associated with protecting our resources.

We firmly believe that this subcommittee should say enough is enough. Farmers can not continue to be all things to all people, especially without some type of assistance. Recently developed estimates put the cost of implementing conservation compliance plans at somewhere between $1 and $4 billion. Without federal cost-share assistance, farmers would be required to bear all of these costs. We recommend that the ACP be funded at $200 million for FY89 with the possibility of increasing this level during the implementation stage of conservation compliance (1990 - 1995). In addition, we would urge you to adopt language in this year's appropriation bill that would lift the $3,500 annual cap on ACP payments per individual. We believe these changes are necessary to ensure that farmers have a reasonable opportunity to meet compliance requirements.

The waterbank program is another excellent example of an Administration with conflicting policies. USDA, through swampbuster, as well as the U.S. Fish and Wildlife Service and the Environmental Protection Agency, are promoting the protection of wetlands. They have identified these areas as important, valuable resources which must be protected. Yet, one of the programs that helps farmers do just that is slated for termination. We can not see how these positions, protection of wetlands and termination of the Water Bank program, are consistent. We would urge you to reject the Administration's proposed budget and fund the cost-share programs at the levels suggested on the attached chart. In addition, we would ask you to begin to consider increasing the size of these programs to meet the need created by our new conservation programs.

We would also like to take a moment to address the Conservation Reserve Program. Conservation districts believe that this cost-effective program provides an effective means of controlling severe erosion problems. It is estimated that in the first five years of operation, CRP will save the government $700 million in commodity program payments and that this savings will grow through the life of the program. We would ask that this subcommittee continue to support funding for the program to its full 45 million acre potential. I would also urge you to repeal the language included in the Continuing Resolution that you passed last December which requires that CRP payments be no greater than local prevailing cash rental rates. It is important to remember that under CRP, a farmer's income is frozen for a ten-year period. That individual has no option to increase income when prices and expenses rise. This makes it very difficult if not impossible to compare the two rental rates and we would urge you to let USDA use their previous method for determining rental rates.

## Agricultural Research Service and Cooperative State Research Service

Conservation districts would urge continued funding of these valuable programs. As we move to implementing the conservation provisions of the 1985 Food Security Act, research will become more and more important. We want to be able to offer farming options that will not only control erosion, but will also allow farmers to turn a profit. Strong, viable research programs are needed to provide these new options to the farm community. I would call your attention to our specific recommendations in the attached chart.

## Cooperative Extension Service

The Extension Service is an integral part of the federal/state/local partnership serving natural resource managers. Its role is to provide education leadership on ways to better use and manage our soil and water resources.

The 1985 Food Security Act has placed new responsibilities upon the agency. Extension education efforts are necessary to ensure that farmers fully understand how they may be affected by and how to comply with the requirements of these new conservation provisions. Districts feel that if we are to effectively reach the farming community, the budget for the Extension Service must be increased.

I want to call special attention to the programs under the Renewable Resources Extension Act. Congress just last year reauthorized this program, with funding up to $15 million annually. While this program has been in existence for several years, it has never been fully funded.

NACD asks this subcommittee to change that track record by providing $15 million for RREA in FY89. Districts believe that if Extension will begin now to explore alternative uses of our renewable resources, we will have a better opportunity to protect CRP lands once contracts begin to expire. What we really need is to be able to provide farmers with alternatives to crop production on these highly erodible lands. We feel that by providing full funding of RREA, we will have more of these alternative uses available for current CRP contract holders.

Farmers Home Administration

FmHA has available several loan programs which can be used at the local level to enhance natural resource bases. As with many federal resource protection and enhancement programs, this Administration believes they have little value and are proposing their elimination. Once again, we see conflicting policies coming from USDA.

As I mentioned earlier, USDA is supporting initiatives to promote revitalization of rural economies. Our rural areas' greatest asset is the natural resource base. It is from this base that new wealth is created. So, once again we are at a loss to explain how USDA can rationalize terminating programs that protect the assets which are the cornerstone of rural life. We would urge you to restore the FmHA programs to levels indicated in the attached chart.

Thank you for this opportunity to appear before you today. America's conservation districts stand ready to implement and support programs designed to protect and enhance our nation's soil and water resources. The job is a big one, but we are confident that by working together it is one we can handle. I would be happy to answer any questions at this time.

| | FY 88 APPROPRIATION | PRESIDENT'S FY 89 BUDGET | FY 89 NACD RECOMMENDATION |
|---|---|---|---|
| SOIL CONSERVATION SERVICE | | | |
| Conservation Operation | 443.9 | 455.2 | 475 |
| River Basins | 12.1 | 9.8 | 12 |
| Watershed Planning | 8.7 | 8.2 | 12 |
| Watershed Operations | 160.8 | 95.4 | 200 |
| RC&D's | 25 | 25 | 35 |
| Great Plains | 20.5 | 6.0 | 22 |
| TOTAL SCS | 676.1 | 599.6 | 756 |
| FUNDS TRANSFERED TO SCS | | | |
| Office of Surface Mining (RAMP) | 15.0 | 0 | 20 |
| NPS Technical Assitance (304 k) | 0 | 0 | 25 |
| AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE | | | |
| Conservation Reserve | 1,131.0 | 1,864.0 | 2,200 |
| ACP | 176.9 | 0 | 200 |
| FIP | 11.9 | 0 | 13 |
| Water Bank | 8.4 | 0 | 10 |
| Colorado River Salinity Control Program | 4.9 | 0 | 5 |

| | FY 88 APPROPRIATION | PRESIDENT'S FY 89 BUDGET | FY 89 NACD RECOMMENDATION |
|---|---|---|---|
| AGRICULTURAL RESEARCH SERVICE | | | |
| Soil & Water Conservation Research | 60.8 | 66.6 | 67 |
| ANIMAL AND PLANT HEALTH INSPECTION SERVICE | | | |
| Animal Damage Control | 24.4 | 13.0 | 25 |
| COOPERATIVE STATE RESEARCH SERVICE | | | |
| Hatch Act | 155.5 | 155.5 | 155 |
| McIntire-Stennis | 17.5 | 13.0 | 18 |
| Rangeland Research | .5 | 0 | 1 |
| COOPERATIVE EXTENSION SERVICE | | | |
| General Formula Funds | 241.6 | 228.5 | 242 |
| Earmarked Programs | 73.8 | 68.2 | 74 |
| Renewable Resources Extension Act | 2.8 | 2.8 | 15 |
| FOREST SERVICE | | | |
| Forest Pest Management | 41.0 | 28.1 | 41 |
| Rural Fire Protection | 13.8 | 3.9 | 14 |
| Forest Management & Utilization | 10.8 | 0 | 15 |
| Range Management | 29.2 | 26.3 | 29 |
| Range Betterment Fund | 3.6 | 3.9 | 4 |
| Wildlife & Fish Habitat Mgmt. | 47.4 | 45.4 | 59 |
| FARMER'S HOME ADMINISTRATION | | | |
| Rural Community Fire Protection | 3.1 | 0 | 3.1 |
| Soil & Water Loans-Direct | 11.0 | 0 | 14 |
| Soil & Water Loans-Guarenteed | 3.0 | 0 | 0 |
| Watershed Protection & Flood Prevention | 7.9 | 0 | 8 |
| RC&D Loans | 1.2 | 0 | 1.2 |
| ENVIRONMENTAL PROTECTION AGENCY | | | |
| Water Quality Management (205J) | 23.0 | 7.5 | 23 |
| Clean Lakes Program | 9.5 | 0 | 15 |
| State Programs Grant | 62.1 | 62.1 | 72 |
| Sec. 319 NPS Grants | 0 | 0 | 100 |
| Sec. 304K NPS Tech. Assistance (Transfer to SCS) | 0 | 0 | 25 |
| BUREAU OF LAND MANAGEMENT | | | |
| Soil, Water & Air Management | 20.0 | 25.9 | 26 |
| Grazing Management | 33.9 | 33.9 | 35 |
| Wildlife Habitat Management | 18.5 | 14.9 | 21 |
| Wild Horse & Burro Program | 14.8 | 7.5 | 15 |
| U.S. GEOLOGICAL SERVICE | | | |
| National Mapping, Geography and Surveys | 90.9 | 90.0 | 91 |
| Water Resources Investigations | 149.8 | 133.3 | 150 |
| FISH AND WILDLIFE SERVICE | | | |
| Fishery Research & Development | 13.2 | 11.8 | 13 |
| Fish Hatcheries | 26.2 | 26.4 | 26 |
| Refuge Fund | 5.6 | 5.6 | 6 |
| Anadromous Fish Program | 2.0 | 0 | 2 |
| Cooperative Research Units | 5.7 | 5.8 | 8 |
| Fish & Wildlife Enhancement | 1.2 | 1.2 | 5 |

## NATIONAL WATER QUALITY PLAN FOR ACTION

### STATEMENT OF DR. ART HORNSBY, PROFESSOR, WATER QUALITY EDUCATION, UNIVERSITY OF FLORIDA

Senator **BURDICK**. Dr. Edward Bloustein, president of Rutgers, the State University of New Jersey.

**VOICE FROM THE FLOOR**. Mr. Bloustein will not be here until the scheduled time at 3:20.

Senator **BURDICK**. Dr. Art Hornsby, professor, water quality education, University of Florida?

Is he present yet?

Dr. **HORNSBY**. Yes, Senator.

Thank you, Mr. Chairman. I am Arthur Hornsby, professor of water quality education at the University of Florida, where I conduct research and extension education activities related directly to water quality.

I appreciate the opportunity to be able to express to you the importance of the National Water Quality and Management Plan of Action that the land-grant colleges have developed. The land-grant colleges in all 50 States are asking this committee to consider our request for $25 million in USDA Cooperative State Research Service and $15 million in the USDA Cooperative Extension Service for water quality research and extension education.

I want first to compliment this committee for its past support of research and extension activities in the land-grant colleges throughout the nation. Your support is invaluable in such efforts as these.

For 95 percent of the 63 million rural residents in the Nation, ground water is the sole source of drinking water supplies. Very few of these wells have been tested for organic pollutants. Farmers and other pesticide users do not have adequate information in front of them to make environmentally sound decisions or choices among the chemicals available to them for crop production.

To be responsible stewards of our natural resources while producing food and fiber to maintain the current standard of living that the American public expects, agricultural producers need guidance in these matters. In my written testimony, I have given the principles of the Water Quality and Management Plan of Action and some examples of successful efforts already underway at the land-grant colleges.

I would like to describe what is going on in Florida and to address the issue of ground water contamination and how these efforts could be used by other States. In Florida, the chemical industry, producer associations and the State action agencies have requested the land-grant college to help develop better understandings of this issue and to work with them to avoid contamination of drinking water supplies.

The Florida Pesticide Review Council was created to provide advice to the Commissioner of Agriculture regarding pesticides and pesticide-related water quality issues. This council includes a representative from the land-grant colleges. A pesticide assessment procedure has been developed by the council to identify the land areas and pesticides most likely to result in groundwater contamination.

This procedure is used by the Department of Environmental Regulation and the Department of Agriculture to guide them in their monitoring efforts so that they can focus on where the problems might be. Workshops and training courses on pesticide usage and its potential impact on surface and goundwater quality, toxic chemicals in Florida's water resources and management of agricultural chemicals in relation to water quality have been developed and conducted for the county agents and for the USDA Soil Conservation Service in Florida.

State agency personnel from the Departments of Agriculture and Environmental Regulation and the water management districts have participated in these educational efforts. Both the chemical industry and the grower groups have requested educational programs and speakers to address the water quality issue related to agrichemical and fertilizer use.

They are genuinely concerned that their actions do not significantly impair water quality. Microcomputer software has been developed that describes the fate and movement of pesticides and nitrate fertilizers in response to rainfall and irrigation. This software has been used to advise farmers to select environmentally sound pesticides.

The data requirements are minimal, and the program is easy to use. These examples from Florida represent only a sampling of the programs that can be adapted to other States to address water quality issues nationwide.

It is our job in the land-grant college to develop answers to water quality issues and to develop effective extension programs to guide pesticide users and to environmentally sound choices of pest control alternatives.

While progress has begun, we need at least ten years of hard work ahead. The Congress has recognized water quality as a priority issue. We ask that it continue to support that effort by supporting this plan.

Thank you. I can entertain any questions you have.

Senator BURDICK. Thank you. Do some regions have significantly more water quality problems than others?

Dr. HORNSBY. Yes, sir. I live in Florida, where the soils are quite sandy, the water tables are quite shallow, and we have a wide diversity of crops where many pesticides are used. So we have a great potential for ground water contamination there.

In Long Island, they have also experienced the same problem. In the central sands areas of Wisconsin and in Minnesota, they have experienced problems. You are probably aware that nitrogen contamination in Nebraska is a serious problem. So yes, there are many States that have problems.

Senator BURDICK. Are rural areas worse off than urban areas?

Dr. HORNSBY. They may not be worse off, but the residents rely on ground water there for their drinking water supply, so they have no treatments. For the most part, there are very few treatment systems that would address nitrates or pesticides, and certainly, not in the rural areas. The rural areas are where the farming activities take place. There are, notably, a lot of urban areas where toxic chemicals and industrial waste have contaminated ground water.

The principles that control the movement of toxic waste, whether they are industrial or agriculture, are the same, in terms of understanding how they move from the source where they reside to the ground water or drinking water supplies.

Senator **Burdick**. Thank you.

Dr. **Hornsby**. Thank you.

[The statement follows:]

## STATEMENT OF DR. ART G. HORNSBY

The Land Grant Colleges wish to express our appreciation to the Senate Appropriations Subcommittee on Agriculture and Rural Development for this opportunity to emphasize the importance of taking action today on water quality issues, especially as they relate to agriculture. We also want to compliment this Committee for its support and leadership in the area of research and education designed to solve water quality problems.

The Land Grant Colleges have responded to this problem of water quality degradation by developing a Plan of Action for which we are requesting funding in the amount of $15 million in Cooperative Extension Service and $25 million in the Cooperative State Research Service in the 1989 fiscal year budget of the United States Department of Agriculture.

### The Need for More Research and Education on Water Quality

There is a need for more research about how land-applied chemicals reach the goundwater, about the health impacts of such chemicals on drinking water, and about ways to protect or enhance our water resources.

At the same time, much is already known. The Nation's 63 million rural residents should have their water tested. Common sense approaches can reduce the potentials for water contamination.

There is no doubt that more public education (including Extension programs) is needed to make people aware of the scope, dimensions and intricacies of water quality, and especially of groundwater. While there is substantial public concern there is little public recognition that "we" (the Public) are also the major component of the problem.

Profligate mis-use of under-valued water, the use of a myriad of chemicals with little thought of the impact on water quality, and little or no understanding of the nature of the Nation's water resources are major causes of the problem.

The Cooperative Extension System and the Cooperative State Research Service view farmers, ranchers, rural residents and rural communities as its primary clientele. However, many CES and CSRS projects involve large metropolitan areas and urban households. This network of research and extension reaches into every county of the United States and can effectively deal with water quality problems at the local level.

### Successful National Programs

There have been several national programs which have acted to protect water quality. Pesticide Applicator Training has assisted in the certification of 1.5 million applicators of restricted-use pesticides. Integrated Pest Management has resulted in significant reductions in pesticide use in Agriculture. Soil testing prgrams which analyze over 3 million soil samples each year enable farmers, fertilizers dealers and and Extension Agents make responsible management recommendations and decisions. The Low Input Agriculture Program is just starting this year on a national basis to develop additional research and education programs on minimizing the use of agronomic inputs, some of which could reduce the probability of polluting water.

### Successful State Programs

Many states have developed programs designed to reduce the amount of water quality degradation or clean up polluted water.

North Dakota - A North Dakota Health Department survey of 92 municipal water supplies showed traces of pesticides in ten of those supplies. North Dakota State University has responded to that and other findings by holding workshops, desiminating education materials and working with farmers and communities to take preventative actions.

Mississippi - Mississippi State University educated farmers about best management practices and the amount of insecticides sold dropped by almost 700 percent from 42 million pounds of active ingredient in 1972 to 6.8 million pounds in 1987.

Iowa - Iowa State University has developed the Integrated Farm Management Demonstration Program and interviewed many farmers about their agricultural production practices. Eighty percent of the farmers said they would like to reduce their use of farm chemicals if these low chemical practices could be shown to be economical.

Iowa State has also directed an education program at farmers in the Big Springs Watershed. There is a perception that many farmers over-use fertilizers to try to achieve unlikely high yields.

Florida - The University of Florida has developed a screening method to select safer pesticides among a selection of equally eficacious products. The University is also training extension agents about water quality so they can work more effectively with farmers throughout the state to protect water quality.

Tennessee - Reelfoot Lake has significant agriculture related problems with the deposition of pesticides and fertilizers on soil particles into the lake. The University of Tennessee in cooperation with the Soil Conservation Service and the Agricultural Stabilization and Conservation Service worked with local farmers who in turn reduced the sedimentation from 850,692 tons per year in 1980 to 470,000 tons per year in 1984. The goal is to achieve even further reductions.

Idaho - In the past twenty years extensive research by the University of Idaho has led to the development of best management practices specifically for Idaho growers, who have reduced the amount of sedimentation and fertilizer loss into water supplies.

Arkansas - Water quality affects animal production as well as human health. The University of Arkansas is improving the quality of water used on 5,500 farms that produce 673 million broiler chickens per year in the state of Arkansas.

Pennsylvania - Pennsylvania State University is intensifying studies and education on various water quality issues through the newly formed Water Quality and Management Task Force. One concrete accomplishment is the in-service traing of county extension agents to improve the rural drinking water throughout the state.

Wisconsin - Monitoring has detected 21 pesticides and nitrate in groundwater in Wisconsin. When aldicarb contamination became a problem in the Central Sand Plain groundwater, the University of Wisconsin College of Agriculture and Life Sciences aided in formulating use modificaitons and designating moratorium areas.

Arizona - The University of Arizona extension workers are conducting research in farmers fields to reduce water usage and agronomic inputs including chemicals which could leach into the groundwater. Researchers are also working with municipalities to develop methods of more safely disposing of waste water treatment sludge.

California - The University of California is working with growers on low input agricultural production systems, helping develop state strategies to protect water quality and is targeting critical problems such as the rising concentraiton of salt and toxic elements in the drainage waters from irrigated lands on the west side of central California's San Joaquin Valley, including the toxic effect of selenium in the Kesterson Reservoir.

Successful Regional Programs

Programs at the multi-state level have been designed to build intra-organizational awareness and interstate coordination. These include:

May, 1985: Regional Conference on Groundwater at Chicopee, Massachusetts attracted 135 Cooperative Extension personnel from New England and eastern New York. The program dealt with state programs and challenges.

November, 1985: Conference on Water Quality - Agricultural and Community Concerns in the South" at Atlanta, Georgia was attended by over 160 Extension personnel from the southern states.

May, 1986: Regional Groundwater Workshop at Chautauqua County, New York attracted 135 Extension personnel from Pennsylvania, Maryland, West Virginia, New York and the states of the eastern North Central Region, who addressed technical and programmatic challenges to the Cooperative Extension System in dealing with the Challenge of water quality education.

March, 1987: The North Central Water Quality Task Force released its report on major opportunities for Extension water quality education programs in the region. Providing safe drinking water and protecting groundwater quality in vulnerable areas were identified as priorities.

May, 1987: Eight State Regional Groundwater Workshop in Ames, Iowa was attended by 140 extension professionals who discussed the best ways to program water quality education.

October, 1987: Regional Conference on Water Treatment at Port Jervis, New York emphasized point-of-use treatment techniques, their availability, applicability, and requirements for maintenance to sustain a source of acceptable domestic water. Approximately 75 Extension professionals and industry representatives attended.

Other Successful National Efforts on Water Quality

The Cooperative Extension Service developed a strategy statement in February, 1986 which identified water quality issues that could be addressed and solved by the Extension Service.

The State Agricultural Experiment Stations developed a water quality research stratgegy in 1986, and the Research and Extension strategies were combined into one national plan of action.

In February, 1988, a National Extension Workshop on Water Quality was held. The 165 registrants from 44 states studied successful education programs from accross the nation. This workshop and others preceding it help prepare the Extension Service and the State Agricultural Experiment Stations to strengthen their national strategy to protect the nation's water quality.

### A Review of the Water Quality Problem

Few people doubt that contamination of groundwater and surface water is a growing problem. According to a recent national poll, 80 percent of the U.S. population believes that groundwater pollution is a national problem, and 54 percent of the people think it is a problem in their community. Nearly 70 percent responded that they believe agricltural fertlilizers and pesticides cause water pollution.

The use of inorganic nitrogen ferlizers, a major souce of nitrate-nitrogen groundwater contamination, increased fourfold between 1960 and 1980. A major cause was heavier fertilizer applications, with the per-acre rate doubling between 1965 and 1984. At the same time, the agricultural use of pesticides rose sharply, nearly tripling since 1964. These trends and others increase the potential for water pollution from agricultural sources.

The number of wells closed due to contamination from agricultural and non-agricultural sources has also increased. Within the last few years, over 2800 wells have been closed in California, 2600 on Long Island, 700 in Connecticut, 400 in New Jersey and 250 in Massachusetts.

### The Response:The National Water Quality and Management Plan of Action by the Land Grant Colleges

The Land Grant Colleges must be a leader in water quality research and education because they possess the expertise in agricultural production and other sources of water contamination. Also, they have a credible and effective educational network that reaches through a system of State Extension Services and State Agricultural Experiment Stations into all counties of our nation.

The water quality plan of action is designed to work with people and motivate them to solve their local problems with local solutions.

### The Principles of the National Plan of Action

The water quality plan of action on the part of the Land Grant Colleges is based on the following principles:

1. We must rely on aggressive education to convince people to adopt actions and plans that will conserve the quality and quantity of our nation's precious water resources.
2. The State Agricultural Experiment Stations and the Cooperative Extension Service have a proven track record in solving water quality

3. Local control within national planning is the watch word for the best management of natural resources.
4. The states and their political subdivisions provide the bulk of the funding for water quality research and extension work within the state systems.
5. Prevention of water quality pollution is much less costly than clean-up activities.
6. Cooperation between agencies at the local, state and federal levels is a key to successful governmental actions on water quality.

### USDA participation in the National Plan of Action

The Joint Council on Food and Agricultural Sciences and Education has recommended that Water Quality be the number one budget priority for USDA in 1989. However, the USDA has not requested any funding in the fiscal year 1989 budget for water qulaity research in the Cooperative State Research Service or specifically within the Cooperative Extension Service.

The USDA has supported reserach and educational activities in natural resources including water, soil, flora and fauna. Recently, there has been a shift in USDA policy to become more involved in the water quality issues at the Departmental level.

It is suggested that water quality research funding be allocated on a regional basis to take advantage of interstate cooperation on common problems. The extension funding should include an education program in every state with a certain percentage targeted toward specific problems.

The Schedule for the Plan of Action

The Water Quality Plan of Action has already begun in every state, but as a nation much more work is needed to motivate people to use chemicals safely if they are used at all.

It is felt that ten years of intensive water quality research and extension work will prevent serious problems with water quality occurring between now and the beginning of the twenty-first century.

It is the intention of the Land Grant Colleges State Agricultural Experiment Stations and the state Cooperative Extension Services to evaluate their water quality activities and report back to the Congress on their progress.

## NATIONAL COTTON COUNCIL OF AMERICA

### STATEMENT OF ROBROY FISHER, GREENVILLE, MI, CHAIRMAN, COTTON INDUSTRY/GOVERNMENT RELATIONS COMMITTEE

Senator **BURDICK**. Our next witness is Dr. George May, program director, Institute of Technology and Development, Space Remote Sensing Center.

Is he here? Is Dr. Edward Bloustein here now?

**VOICE FROM THE FLOOR**. No, sir. He should be here within 5 minutes.

Senator **BURDICK**. How about Mr. Rob Fisher?

Mr. **FISHER**. Yes. Thank you, Mr. Chairman.

Senator **BURDICK**. Proceed as you wish.

Mr. **FISHER**. My name is Robroy Fisher. I am a cotton farmer from Greenville, MS, with the National Cotton Council. I am chairman of their research committee. The council is the central organization of the U.S. cotton industry, representing growers, ginners, warehousemen, cotton seed crushers, merchants, cooperatives, and textile manufacturers from California to the Carolinas.

At the council's annual meeting in February, delegates unanimously expressed support for appropriations that provide for efficient growth of research and extension programs. They recognize that such action is not inflationary and will produce public benefits far in excess of its power.

My time today allows me only to summarize our request, so I ask your consideration of our written statement which will be submitted. My reference point will be the USDA budget proposal for fiscal 1989.

The administration's budget proposal proposes a cut of 5 percent in Extension Service formula programs. This comes at a time when the need for extension support is greater than ever. We request restoration of the $13.111 million in proposed cuts.

We also support restoration of funds for pest management programs and the proposed increase for pesticide impact assessment programs, water quality addressing one of the problems relative to pesticide application.

The administration's budget proposes a 1.6-percent increase in funding for the Agricultural Research Service. We strongly support the proposed increase, recognizing that a well-funded research program is critical to meeting the near- and long-term needs of American agriculture and the consumer.

We also want to request the committee's support for a special appropriation of $2 million for projects designed to strengthen base programs in ginning research and computer crop management systems.

Mr. FISHER. We believe increased funding for ginning research at Stoneville, MS, Mesilla Park, NM, and Lubbock, TX, and for computer crop simulation research should be given careful consideration, since these projects offer significant potential to reduce production costs, enhance product quality, and increase producer income.

Funding for the Department's Cooperative State Research Service is slated for a decrease of 23 percent, primarily through drastic cuts in special grant programs. Nearly all special grants programs are national in scope and are certainly in the country's best interest.

We, therefore, request full restoration of CSRS budgets, including Hatch, competitive and special grants to at least the 1988 appropriated level of $342.5 million. With the reduction in competitive and special grants program, it puts an additional pressure on the Hatch Act formula fund.

Pest management and eradication programs administered by the Animal, Plant and Health Inspection Service [APHIS], play an important part in protecting crops from diseases and insects. Notable among these are efforts to contain the pink bollworm in the Western States and to eliminate the boll weevil in other Cotton Belt States. The proposed 1989 budget recommends a 36 percent cut in the APHIS pink bollworm budget. To continue this important program, we request that funding be provided at the 1988 level as a minimum, recognizing that the 1988 funding level represented a significant reduction from 1987.

We also are requesting funds to be provided to APHIS for the boll weevil containment and eradication programs in Texas and Oklahoma, Arizona and six Southeastern States. These programs, which are cost shared by growers who pay up to 70 percent of cost, are effective areawide programs.

We are requesting a total appropriation of $11.996 million in fiscal 1989 to allow APHIS to continue to operate and participate in the Southeast, Southwest, and High Plains programs. This funding is slightly less than the fiscal 1988 level, but it is critical for the continuation of the program, given the increased acreage planted to cotton in the southeast and the probability that the program will be expanded into north Alabama and Tennessee.

It should be noted that the producers' self assessment, approved by referendum, is based on a 70–30 cost share with the producer paying 70 percent. Consequently, the program would be jeopardized if the APHIS funds were reduced or eliminated.

In summary, we are encouraged by the progress of recent years and in the development and application of new technology. Consideration of our request for restoration of funds for some programs and additional support for others will certainly help U.S. agriculture continue to beat our competition and contribute to our Nation's economy. Thank you.

Senator COCHRAN [presiding]. Mr. Fisher, while you were presenting your statement, we slipped in a new chairman on you.

Mr. FISHER. I see that.

Senator COCHRAN. I am really glad to have a chance to be here personally to welcome you to the Appropriations Subcommittee on Agriculture, Rural Developmentand Related Agencies. We are very happy to have you representing the National Cotton Council. I see John Maguire also; he is a good friend, and is very helpful to all of us when we are trying to make decisions relating to or affecting the cotton industry.

I appreciate the comments you have made, and I think you are right about our having to take a careful look at some of these proposed reductions in the budget that has been submitted to the Congress. We need to continue to appropriate adequate amounts of money to do the research that is needed in an attempt to keep the costs of production under control.

I think we have a real good chance in agriculture this year to make up for a lot of lost ground. I was noticing an article in the "Commercial Appeal" the other day talking about the agricultural outlook this year being better than it has been in 6 or 8 years. That is encouraging. I hope we can have a very good year. We surely need one.

It also, though, illustrates that we have to have good, stable farm programs, and we have to back that up with research and extension work at controlling pests like the boll worm and others that we know can add expense to the cost of production.

I am particularly interested in seeing money provided to those ginning laboratories you mentioned. I think it is important to put emphasis there. There are a lot of benefits that will accrue to not only the cotton industry but also to consumers. People forget about the fact that if we hold down the cost of production, consumers are going to benefit from that, because the costs of the products they buy will tend to be lower, more reasonable, and we will export more of what we produce, because we will be able to compete in the international marketplace. It has a ripple effect throughout our entire economy.

I don't have any real questions for you. I am just delighted to see you and welcome you, again, to the committee. I wish you well. I hope we have a good year in the Mississippi delta and throughout the country in agriculture this year.

Mr. FISHER. We can certainly use it, Senator. I would like to take this opportunity if I can, just a minute, to thank you and the committee for the support that you give not only to agriculture, but especially to agriculture research, and we want you to know we appreciate it.

Senator **Cochran**. Thank you, Robroy. Thanks a lot for being here.

Mr. **Fisher**. Thank you.

[The statement follows:]

## STATEMENT OF ROBROY FISHER

The National Cotton Council is the central organization of the U.S. cotton industry, representing growers, ginners, warehousemen, cottonseed crushers, merchants, cooperatives and textile manufacturers from California to the Carolinas.

At the Council's annual meeting in February, the 302 delegates selected by 90 separate state, regional and national organizations strongly endorsed expanded agricultural research, education and action programs to reduce costs and increase competitiveness of U. S. cotton. In a unanimous resolution, they expressed continuing support for appropriations for research and extension programs that provide for efficient program growth. They recognized that such action is not inflationary and will produce public benefits far in excess of its costs.

We vigorously support a balanced reduction in the federal deficit. However, we recognize that agriculture cannot accomplish this task alone, or even a major part of it. But, we are willing to do our part because reducing the federal deficit is the surest way to assure the dollar is in a favorable relationship with other currencies and makes us more competitive in world markets.

A pressing issue interrelated with the deficit and improved competitiveness is public investment in research, extension and action programs to reduce costs. We feel that maintaining an adequate research and extension budget for agriculture is a competitive necessity and represents a sound national investment that will pay dividends far in excess of its cost.

Recognizing the need for all sectors of the nation to help hold the line on government spending, we have reluctantly accepted a no-growth budget for agricultural research and extension for several years. This was done with the expectation that funding for essential projects would be provided in the future. Such has not been the case, so we are compelled to recommend several adjustments in USDA's proposed FY 1989 budget.

### RESEARCH AND EDUCATION

Total research and education programs for agriculture are proposed to be decreased 11% for 1989. These decreases are in sharp contrast with the total federal research and development budget which includes a proposed increase of 4%. Most of this increase is for defense research and development, and while we support a strong defense program, its proposed R & D budget consumes 66% of total federal R & D funding. Agriculture's share is less than 2%. In view of the fact that the nation's capability to provide food and fiber is basic to a strong defense program, we think the priority given agriculture is much too low.

### Extension Service

Extension Service formula programs are proposed to be cut 5% ($13.111 million). This untimely reduction comes in the midst of a survival crisis for agriculture when the need for extension support is great. Earmarked programs are proposed to be cut 39 percent. Some programs would be cut completely, some would be reduced, and others would be funded for the first time.

Funds for the extension pest management programs are eliminated. These programs are critical for agriculture and we are thereby requesting that $7.164 million be provided to restore the extension integrated management program to the 1988 level. We also support restoration of funding to the 1988 level for farm safety programs which under the proposed budget would be eliminated.

We support the proposed 58 percent increase for pesticide impact assessment from $1.633 to 2.580 million. The continued evaluation of agricultural chemicals under the pesticide impact assessment program is essential to agricultural productivity, profitability, and protection of the environment.

We commend the Extension Service for its initiative in developing three innovative programs; (1) priority initiatives, (2) agriculture profitability, and (3) rural revitalization. We support funding for these new programs as these new initiatives will allow the Extension Service and their cooperators to more effectively apply new techniques for solving todays agricultural and rural development problems.

**Agricultural Research Service**

The Agricultural Research Service (ARS) is proposed to receive a 1.6% increase over the 1988 appropriations. We appreciate the increase for the Department's in-house research agency, even though it is considerably below the needs for a growth program.

This increase leaves little to maintain the base program for agricultural research, and indeed we have entered the second decade of decline in the number of scientists allocated to agricultural research. A well funded, balanced program of basic and applied research is critical to meeting the near- and long-term needs of American agriculture and the consumer.

Quality and costs are key elements in competing for markets at home and abroad. Therefore, Council delegates also requested that special appropriations of an additional $2 million be obtained to strengthen ARS base programs for cotton quality and management systems. Of that amount, we are requesting $1 million for the ARS Crop Simulation Laboratory at Mississippi State University for increased support to improve farmer's cotton computer crop management systems. There is an urgent need for improved computer simulation models simulating quality, pest management, soils, and varieties so the producer can be better able to produce his crop most effectively. Additionally, we are requesting $1 million to be divided among three USDA Ginning Laboratories located at Stoneville, Mississippi; Lubbock, Texas; and Mesilla Park, New Mexico. We are in strong need for increased emphasis in ginning research to enhance interactive decision making, computer control ginning systems, and instrumentation systems. Potential benefits of reduced production and processing costs plus improved product quality and utility will no doubt enhance our industry's competitiveness.

**Cooperative States Research Service**

Funding from the Department's Cooperative States Research Service (CSRS) plays a vital role in bringing together state agricultural experiment stations, industry and the federal government to form the ideal partnership to provide answers to America's agricultural problems.

The CSRS budget is slated for a decrease of 23% from the 1988 appropriations. Though Hatch formula funds are proposed to stay at the same level as 1988, special grants were drastically cut. Special grants programs include such efforts as research for National Integrated Pest Management and support of the Pesticide Impact Assessment Program. With the elimination of the special grants, the primary burden of supporting these important programs will be shifted to the already over-burdened funds from Hatch Act appropriations. Nearly all special grants programs, though they may be conducted at a single state location, are regional and national in scope and are in the nation's interest. We therefore request full restoration of CSRS budgets -- including Hatch, competitive and special grants -- to at least the 1988 appropriated level of $342.504 million.

## ANIMAL AND PLANT HEALTH INSPECTION SERVICE

Council delegates also endorsed continuation and expansion, where appropriate, of pest management and eradication programs administered by the Animal and Plant Health Inspection Service (APHIS).

APHIS programs play an important part in protecting crops from infestation and spread of diseases and insects. Notable among these are efforts to contain the pink bollworm in the western states and to eliminate or contain the boll weevil in other Cotton Belt states.

The proposed 1989 budget recommends a 36 percent cut of APHIS' pink bollworm budget to $1.087 million. In keeping with the need to continue this important program we are requesting that funds be restored to at least the 1988 level of $1.7 million.

We are also requesting 1989 Appropriations of $11.996 million for APHIS' 30% cost share for continuing support of the Boll Weevil Eradication and Boll Weevil contaminant programs. The appropriations would provide $722,000 for the Texas/Oklahoma High Plains Boll Weevil containment program; $3.170 million for continuing and expanding eradication efforts in Arizona and $8.104 million for the third year program costs of the southeastern Georgia, Alabama, and Florida expansion; and, containment in North Carolina and South Carolina.

These programs, which are cost-shared by growers who pay 70% of program costs, are effective area-wide management programs and need to be continued. Farmers in the affected areas strongly support the boll weevil eradication effort begun in their states. The program has reduced the costs of production and demonstrates the positive results of a program involving coordinated efforts by federal and state research, APHIS, cooperative extension, industry, state regulatory agencies and growers. Boll weevil eradication is providing for increased U. S. competitiveness in a global economy.

Continuation of the efforts to rid farmers of the boll weevil have important ecological and environmental as well as economic benefits. As environmental concerns increase, the boll weevil eradication program is highly important to reducing the total environmental burden. By way of example, the successful Boll Weevil Eradication Program in North Carolina and South Carolina has permitted growers to reduce the number of spray applications approximately 70% below pre-eradicated levels. These reductions are due not only to total elimination of insecticide applications for weevils, but also pesticide applications for other insects are reduced. The field insect ecology stays in balance much longer into the season and thus less chemicals are required. The program also employs new techniques such as sex attractants to eliminate the pests where infestations are low, further reducing the need for blanket applications of pesticides. We predict similar environmental benefits as the program is expanded into Georgia, Alabama, Florida and other parts of Arizona.

Though these programs are highly beneficial to growers they are not effective if left up to each grower to act independently. Programs are only effective through the support of a national coordinated effort such as APHIS can provide.

## Summary

In summary, we are encouraged with the progress of recent years and in the development and application of new technology. Agriculture indeed must struggle for survival in todays highly competitive world environment and we must use every tool available. Consideration for our request for restoration of funds of some programs and additional support for others will go a long way toward allowing us to meet our competition in the world market place.

## INSTITUTE FOR TECHNOLOGY DEVELOPMENT SPACE REMOTE SENSING CENTER

### STATEMENT OF DR. GEORGE MAY, PROGRAM DIRECTOR

Senator COCHRAN. Our next witness is Dr. George May, acting director, Space Remote Sensing Center of the Institute for Technology Development of Jackson, MS.

Dr. MAY. Thank you, Senator Cochran. I have submitted a five-page statement. With your authorization, I would like to go ahead and summarize that statement.

Senator BURDICK. We will put it in the record in its entirety and ask you to make whatever comments you would like to make extemporaneously. Go ahead.

Dr. MAY. OK. I want to thank you for allowing me to come to testify today concerning a program that will implement space technology at the farm level to directly benefit the American farmer. I am the acting director of the Space Remote Sensing Center within the Institute for Technology Development. ITD is a not-for-profit applied research corporation headquartered in Jackson, MS. Prior to coming to ITD, I worked 9 years with the U.S. Department of Agriculture in both the Foreign Ag Service and the National Agricultural Statistics Service implementing this technology in several States and foreign countries.

I currently own a farm in Pennsylvania where my brother and I grow wheat, corn and alfalfa on 190 acres. I am here today to specifically urge you to add additional moneys to President Reagan's USDA Ag Research Service budget, totaling $2.6 million over a 3-year period beginning in fiscal year 1989.

We are requesting funds of $830,000. This is a joint program between ITD and the Ag Research Service. We are trying to get space technology implemented down to the farm level. ITD has been working on a grant from NASA over the last two years, and this grant gives us the charter to commercialize space technology within the private sector, in essence, getting this technology out of the Government's hands and into the private sector.

ITD has focused its number one area in agriculture. The main reason is because the U.S. Government has a significantly large research base in this area based on two major programs, the LACIE, which was in the mid- to late-seventies, and AGRISTARS, which ended in 1983. Both these projects looked at all the major grains and how space technology could be used in assessing them.

Since the conclusion of the AGRISTARS program, we have better sensors that are in space today, and ITD is taking this new technology, these new sensors, and applying the research base. We have it working in the winter wheat.

Over the last 18 months, we have spent $0.5 million of our own money in Kansas, Oklahoma, and Montana, developing field-level products for the farmer in these four States. We are using a satellite that can look at one-tenth of an acre of land, and we can produce on that one-tenth of an acre a bigger assessment, stress, calculate the exact acreage and predict the yield.

We can do these products for 12 cents an acre. In Montana, we are working with several farmers in Montana State where we are using this technology to show them to use prescription farming techniques versus just farming the field as one homogeneous unit.

Senator COCHRAN. Thank you very much for your testimony and for presenting the written statement explaining this program and the use to which these funds would be put, if we are able to appropriate them.

I want to also welcome my friend Jim Jordan who is here with you, and say that if he is for this, this doesn't hurt it at all; this doesn't hurt the project at all. He is a good friend. We worked closely with him when he was on the staff of my colleague, John Stennis.

Dr. MAY. I did want to say that it has significant economic impact. The project in Montana has indicated that farmers can save $3.50 an acre, and in a recent analysis on one farm, we saved $9 an acre. Over a three-county area, if every farmer implemented this technology, it was $3.7 million on an annual basis. So these are significant numbers, and we have made a significant investment already in this technology.

Senator COCHRAN. Yes. I am impressed with the prospects for saving funds, and I think we ought to look very carefully at this recommendation. If it does afford us a chance to contribute to improving productivity on the farms and taking advantage of new technologies to do that, I think we certainly ought to embrace it and, if within the constraints of our budget resolution and our allocation of funds from the budget process we have the available funds, I think we ought to fund this program.

We will be talking with the other members of the subcommittee in trying to be sure that they understand what it is, how it will be used, and how it will be of benefit to the Nation. Thanks for taking time to come and testify before our committee.

Dr. MAY. Thank you very much.

Senator COCHRAN. Thank you.

Dr. **May.** I want to thank your office and David Graves for the support he has provided us on this effort.

Senator **Cochran.** Good. He is a very valuable member of my personal staff. Thank you very much.

Dr. **May.** Thank you.

[The statement follows:]

## STATEMENT OF DR. GEORGE A. MAY

### SUMMARY

The committee is urged to add to the President's Budget request for USDA Agricultural Research Service funds in the amount of $2.6 million for a three year program to transfer space remote sensing technology to the farm level user. Current advanced space remote sensing technology can provide direct economic benefit to the American farmer. The Institute for Technology Development, a university-based, non-profit, applied research corporation and the USDA Agriculture Research Service propose a $2.6 million, three year cooperative research, demonstration, and education program for the purpose of advancing the implementation of space remote sensing technology at the farm level for growers of wheat, corn, soybeans, rice and cotton.

The proposed program is designed to use advanced sensors to develop and demonstrate the use of space remote sensing data to aid farmers in the efficient use of fertilizer and herbicides, early detection of crop stress, range and pasture productivity assessment, and crop yield and acreage estimates. Finally the project will demonstrate the use of remote sensing to conduct erodible land inventories.

Applying Satellite Remote Sensing Technology to Agriculture Needs
BUDGET SUMMARY (in 000's)

| | FY-89 | FY-90 | FY-91 | Total |
|---|---|---|---|---|
| Research (ARS) | 190 | 225 | 85 | 500 |
| Demonstration (ITD) | 540 | 630 | 598 | 1768 |
| Education (ITD) | 114 | 110 | 108 | 332 |
| Total | 844 | 965 | 791 | 2,600 |

### STATEMENT

My name is George May and I am the Acting Director of the Institute for Technology Development, Space Remote Sensing Center. I have a Ph.D in Agronomy from The Pennsylvania State University and worked nine years for USDA in both the Foreign Agricultural Service and the National Agricultural Statistics Service. During this tenure I developed techniques to use satellite data to derive better state level crop estimates in Missouri, Kansas, Arkansas, and California in addition to applying this technology in foreign countries. I was born and raised on a dairy farm and currently own a farm in Pennsylvania where my brother and I grow corn, wheat and alfalfa on 190 acres.

The Institute for Technology Development (ITD) is a private, non-profit, university-based corporation headquartered in Jackson, Mississippi. The Space Remote Sensing Center is one of five divisions of ITD and its mission is to demonstrate and apply the use of satellite remote sensing technology in the private sector which will lead to the commercialization of this technology.

Current advanced satellite remote sensing technology can provide information at the farm level that can have economic benefit to the farmer. ITD has demonstrated the use of this technology in hard red winter wheat farming areas. I am appearing before you today to discuss this work and to present how ITD and the USDA Agriculture Research Service (ARS) propose to work together over the next three years to expand satellite applications at the farm level for corn, soybeans, cotton, rice and wheat.

In 1985 NASA selected ITD as a Center for the Commercial Development of Space. This NASA charter provides funding to promote commercialization of satellite technology. Under this charter ITD established the Space Remote Sensing Center and targeted agriculture as its major focus and began in winter wheat in June 1986.

ITD´s agricultural technology transfer activity was built upon the large research base developed during two major U.S. government projects: Large Area Crop Inventory Experiment (LACIE) 1975-1978, and Agriculture and Resources Inventory Surveys Through Aerospace Remote Sensing (AgRISTARS) 1979-1983. These projects conducted research in crop yield model development, spectral reflectance relationships to crop phenologies, soil moisture detection, assessing conservation and pollution practices. The Departments of Agriculture, and Commerce, NASA and the Agency for International Development combined resources to fund about $100 million of AgRISTARS research.

This extensive research base prompted ITD to chose agriculture as the prime industry to demonstrate the commercial potential of space technology. An additional factor in selecting agriculture was that major advances have been made in operational space borne sensors since the conclusion of AgRISTARS and the potential of these satellite sensors is unknown.

During the last eighteen months ITD spent $487,000 in demonstrating the application of remote sensing technology at the farm level. The following briefly outlines these activities and lessons learned:

- Kentucky: ITD used Landsat data to find nitrogen deficient wheat for Hutson Fertilizer Company, who could use this information to sell additional urea fertilizer to farmers for increasing yields. Hutson calculated that additional gross sales of $25,250 could have been realized in Calloway County, Kentucky. Continued research is needed to better define spectral plant nutrient relationships.

- Kansas and Oklahoma: Landsat, SPOT, and NOAA satellite data were used to monitor and assess the wheat crop throughout the growing season on 700 farm operations over a four county area. NOAA data were obtained on a weekly basis to watch wheat growth progression and also to assess damage resulting from a late freeze. Landsat (1/4 acre resolution) and SPOT data (1/10 acre resolution) were used to provide the farmer a snapshot of plant vigor, estimated yield, and exact acreage for each wheat field. ITD´s cost of providing the satellite derived field level product was 12 cents per acre. This project revealed lack of awareness in the farm community of potential applications of satellite technology. This project underscored the need for an educational program to close the wide gap between the user and existing technology.

ITD also demonstrated the utility of merging satellite and soils data at county and farm levels to determine what crops were being grown on highly erodible soils. This technique can be applied to the following provisions of the Conservation Title of the 1985

Food Security Act: Conservation Reserve, Conservation Compliance, Sodbuster and Swampbuster.

- Montana: ITD is working with Montana State University and several farmers to demonstrate the use of satellite data in prescribing different treatment within a given field and according to each soil´s potential, rather than treating the field as one homogeneous unit. An economic study over a three county area indicates that a farmer could save $3.50 per acre by employing "prescription farming" techniques which result in increased annual profits of $4,900 per farmer and $2,621,500 for all farmers in the three counties. Economic analysis just completed on one Montana farm in the "prescription farming" program resulted in a savings of $9 per acre. The November, 1985 issue of Crops and Soils Magazine published by the American Society of Agronomy reported that 30-50 percent of the fields in the nation have enough soil variability where "prescription farming" could increase farm profits by $5 to $15 per acre.

- Indiana: ITD initiated a project with Purdue University to advance the use of Landsat and SPOT data to monitor corn and soybeans. During 1988 ARS and ITD have combined resources to initiate development of NOAA yield models for corn and soybeans in anticipation of a large scale demonstration in these two crops. Additional monies will be needed to continue this effort.

Results obtained from these ITD technology transfer activities have prompted the ITD to propose a three year program to expand satellite applications to other crops. I am here today to outline this program which would provide a vehicle to accelerate research and transfer of satellite remote sensing technology to individual farmers and agri-businesses involved in growing corn, soybeans, rice, cotton and wheat. This program is a cooperative effort between the USDA Agriculture Research Service and the Institute for Technology Development where ARS conducts research in agricultural space remote sensing and then ITD demonstrates and transfers this technology to help the American farmer.

All of the tasks and activities of the proposed program can be grouped into three main elements. The first is to conduct research with spectral measurements from satellite sensors to develop a better understanding of crop stress resulting from weed competition, disease, and nutrient deficiencies. Enhancements will also be made to yield models using satellite-derived variable inputs for the five major crops. Basic and applied research will be conducted with thermal infrared and radar data to better understand their use in agriculture applications. The second program element will be to demonstrate the technology at the farm level in large geographical areas where the major crops are grown. Satellite derived products will include yield estimates, crop vigor maps, acreage calculations, early warnings of crop stress, maps to assist in the efficient use of fertilizers and herbicides and erodible soil inventories. In addition to the five major crops ITD will work with several cattle ranchers to quantitatively assess range and pasture productivity that can be used to move cattle to maximize production and minimize over grazing. Getting satellite based products and services into the farmers hands will provide a feedback mechanism from the user suggesting refinements, additional research, and ultimately stimulate new uses of the technology. The third major program element is to explore and determine the best means for communicating the potential uses of the technology. Currently, there is a wide gap between today´s agricultural remote sensing technology and the user. Part of the funds obtained from this grant request will be used to educate and market this technology to the agriculture community.

On behalf of the Institute for Technology Development and myself I want to thank the Committee for taking the time to hear a presentation on the proposed USDA, ARS and ITD agriculture initiative of implementing space remote sensing technology at the farm level. I am at your service today, and in the future to answer any questions you may have.

Applying Satellite Remote Sensing Technology to Agriculture Needs

BUDGET TIMELINE AND COST

| ACTIVITY | FY-89 | | FY-90 | | FY-91 | |
|---|---|---|---|---|---|---|
| | ITD | ARS | ITD | ARS | ITD | ARS |
| Develop & Demonstrate AVHRR derived yield and acreage over major crops areas. | 60 K | 35 K | 80 K | 40 K | 70 K | |
| Develop & Demonstrate range and pasture condition assessment using AVHRR. | | | | 30 K | 50 K | |
| Assess utility of thermal channel on AVHRR. | | 45 K | | 45 K | | |
| Expand winter wheat demo using SPOT/TM. | 318 K | 30 K | | | | |
| Conduct corn/soybean work & demo using SPOT/TM two midwest states. | | 80 K | 305 K | | | |
| Conduct cotton/rice work & demo using SPOT/TM in Mississippi & Louisiana. | | | | 70 K | 310 K | |
| Expand "Prescription Farming" Concept. | 57 K | | 65 K | | 40 K | |
| Develop & implement education & training program. | 114 K | | 110 K | | 108 K | |
| Advance understanding of weed, disease & nutrient problems. | 35 K | | 126 K | | 107 K | |
| Advance knowledge of radar & its utility in agriculture. | | | | 40 K | | 85K |
| Hardware requirements. | 70 K | | 54 K | | 21 K | |
| Total Cost | 654 K | 190 K | 740 K | 225 K | 706 K | 85K |

## CONGRESSIONAL WITNESS

### STATEMENT OF HON. STROM THURMOND, U.S. SENATOR FROM SOUTH CAROLINA

ACCOMPANIED BY:

DR. O.J. DICKERSON, HEAD, DEPARTMENT OF PLANT PATHOLOGY AND PHYSIOLOGY, CLEMSON UNIVERSITY

DR. J. EDWIN FARIS, PROFESSOR, AGRICULTURE ECONOMICS, CLEMSON UNIVERSITY

Senator COCHRAN. I understand we have witnesses here from Clemson University. Senator Thurmond was going to be here to introduce you to the committee, but we can go ahead and accept the testimony of Dr. O.J. Dickerson, head of the Department of Plant Pathology and Physiology, along with Dr. Edwin Faris, professor, agriculture economics.

We understand that you will be discussing the Cooperative State Research Service budget and other matters of interest to you. We have a joint session of the Congress that has been scheduled today at 4 o'clock to hear the Prime Minister of Canada, and that has forced us to sort of constrain our time so that we can make it to the House Chamber for that event. We hope you can limit your verbal comments to about 5 minutes for us. We would appreciate that very much.

Dr. DICKERSON. I think we can do that. Thank you very much, Mr. Chairman, and other members of the committee. I appreciate the opportunity to appear here today. We are requesting continued support through the special grants for peach tree short life research in the southeastern United States, and this research is to be centered at Clemson University.

Peach tree short life adds a significant chronic burden to the cost of peach production, wherever that might be. Between 80,000 and 100,000 trees die in the Southeast each year. Often, these deaths occur before the costs of the orchard establishment are recovered. Financial losses from tree deaths runs into the millions annually, and additional losses accrue from reduced growth of young trees, lower yields of fruit, and cost of nematicide treatments.

More than two-thirds of the peach acreage in the Southeast potentially suffers from the peach tree short life syndrome. The same is true of other areas that have peaches as such.

Much has been accomplished from support of special grants. A major portion of this proposed research is aimed at identifying peach trees and related plants that have resistance to the ring nematode. Other areas of research will continue to receive attention in an effort to find ring nematode controls that can be implemented quickly and selectively. Several herbaceous plants that may be used as ground cover under peach trees have been found to inhibit ring nematode reproduction.

Knowing physiological changes incited by ring nematode will help improve understanding of the mechanisms involved in tree entry caused by ring nematodes and other pests. Interactions between ring nematodes by bacterial and viral pathogens also will be studied.

The search for microorganisms that can be used as biological controls for the ring nematode will be continued. Any of these studies that may provide a new approach to control the peach tree short life is surely needed.

We have submitted a summary of our statement and we thank you very much for your time. I would be pleased to try to answer any questions you might have.

Senator **Cochran**. I appreciate your comments very much, Dr. Dickerson. We have a copy of testimony submitted by Dr. Faris, too, on alternative cropping systems.

Dr. **Faris**. Correct.

Senator **Cochran**. We will put that in the record in its entirety. Senator Thurmond also sent over a statement discussing the peach tree research project that you touched on, and we will put a copy of his full statement in the record, which will be very helpful to the committee. He also goes into some other subjects that are of interest to you, I know, and to the citizens of South Carolina.

I don't have any questions. We have funded these programs in the past. I recall money being in the bill for peach tree research. That is important for my State of Mississippi, too. I had a distant cousin named Alden McNair, who was one of our better peach orchard operators. He has passed away now, but he was a good friend, and through him, I found out a lot about the peach tree business. He was a great fellow.

This program has benefits all over, the Southeast, particularly; isn't that true?

Dr. **Dickerson**. Yes. It is all over the Southeast, and one reason that at Clemson, that we have amassed a pretty good team to work on this. Peaches are more important to us than they are in, say, North Carolina, or in Mississippi at this point. We have kind of assumed that role in the Southeast. We borrowed peanut research and so forth from other people.

Many of the things that we do here also would be true in Michigan and to some other States, California, New Jersey and other places that grow peaches and similar kinds of fruit.

Senator **Cochran**. Dr. Faris, you may proceed with any comments or highlights from your statement, if you like.

Dr. **Faris**. Thank you very much. I appreciate the opportunity to make a statement. I will just try to hit the high points this time in the interest of the brief amount of time that is available.

The project under consideration is entitled "Agricultural Adjustment in the Southeast through Alternative Cropping Systems." We are here to request $300,000 in funding for fiscal 1989. When I say "we," I speak for four land-grant universities in Georgia, North Carolina, and South Carolina.

Resources in these land-grant universities have been reallocated to address the critical problems faced by farmers, but our resources are inadequate, and we seek your support to augment our efforts to provide the information required for the farmers to make the necessary adjustments.

Senator Thurmond, do you want to continue?

Senator **Cochran**. Senator Thurmond, welcome to our committee. We have heard from Dr. Dickerson. We told him that we were having to kind of speed up a little bit today because of the joint session that we are going to have with the Prime Minister of

Canada at 4 o'clock over in the House Chamber. I invited them to go ahead and proceed.

We have put your statement in the record and complemented you very highly in your absence and thanked you for your guidance as we allocate these funds that are important to South Carolina and to the Southeastern United States.

Senator THURMOND. You have already put my statement in the record, you say.

Senator COCHRAN. We have put it in, and Dr. Dickerson and Dr. Faris both agreed with me that you are one of the great Senators here in Washington today.

Senator THURMOND. Thank you very much. If you have already put it in, that saves time.

Senator COCHRAN. We encourage you to make any comments that you wish.

Senator THURMOND. Thank you very much, Mr. Chairman.

Senator COCHRAN. We welcome you, and you make any other comments you would like, Senator.

Senator THURMOND. No. The only thing is that these things I mentioned are all important. I have testified before this committee year after year, and the distinguished chairman presiding here today is familiar with these matters. He comes from an agricultural State, and I am sure he will be sympathetic with the request I made. Thank you very much.

Senator COCHRAN. Particularly the peach tree research. We talked about how that was important to both of our States.

Senator THURMOND. Thank you.

Senator COCHRAN. Thank you for coming by. We appreciate it very much.

Senator THURMOND. Again, I want to mention theimportanceto South Carolina of the alternative cropping program; the peach tree short life research; the vegetable research laboratory at Charleston; the Soil Conservation Service; Rural Electrification Administration direct loans and loan guarantee program. Those are the topics I covered in my testimony.

Senator COCHRAN. Thank you very much, Senator.

Senator THURMOND. Thank you, Mr. Chairman.

Senator COCHRAN. We appreciate having you here, and we appreciate your taking time to come by.

Senator THURMOND. Fine. Thank you.

Senator COCHRAN. Dr. Faris, we appreciate your comments. If you have any further comments, please go ahead.

Dr. FARIS. You have already inserted, have you not, my full comments?

Senator COCHRAN. Yes. Your statement on alternative cropping service systems is in the record.

Dr. FARIS. In the interest of time, I will quit and it can be read.

Senator COCHRAN. You are very thoughtful, and I appreciate those courtesies.

We will review these suggestions very carefully, because we know you have put a lot of time and effort into preparing this testimony. It is helpful to us to have this information and these suggestions. I know we will benefit from your having been here to appear before our committee.

Dr. **Faris**. Thank you.

Senator **Cochran**. Thank you very, very much.

Dr. **Dickerson**. Thank you, Senator Cochran.

[The statement follows:]

## STATEMENT OF SENATOR THURMOND

I WOULD LIKE TO THANK YOU AND THE OTHER MEMBERS OF THE SENATE APPROPRIATIONS SUBCOMMITTEE ON AGRICULTURE, RURAL DEVELOPMENT AND RELATED AGENCIES FOR THE OPPORTUNITY TO TESTIFY HERE TODAY.

MR. CHAIRMAN, AS WE ALL KNOW, THE FEDERAL BUDGET FOR FISCAL YEAR 1989 IS VERY TIGHT. THEREFORE, WE MUST SEEK TO ALLOCATE FUNDS TO THOSE AREAS WHICH YIELD THE GREATEST RETURNS. IT IS ONLY THROUGH A CAREFUL STRUCTURING OF PRIORITIES THAT WE WILL BE ABLE TO FUND THE MOST WORTHWHILE PROGRAM, WHILE BRINGING RUNAWAY FEDERAL SPENDING UNDER CONTROL.

ONE AREA THAT HAS PROVEN TO BE BOTH COST-EFFICIENT AND BENEFICIAL IS AGRICULTURAL RESEARCH. THROUGH PROGRESS MADE WITH RESEARCH, THE AMERICAN FARMER HAS BEEN ABLE TO PRODUCE MORE FROM A GIVEN PLOT OF LAND, HOLD PRODUCTION COST BELOW WHAT THEY OTHERWISE WOULD HAVE BEEN, AND MARKET THEIR PRODUCTS IN THE MOST EFFICIENT MANNER. I BELIEVE IT IS EXTREMELY IMPORTANT THAT FUNDING BE CONTINUED FOR AGRICULTURAL RESEARCH. I AM PARTICULARLY INTERESTED IN A NUMBER OF RESEARCH PROGRAMS BEING CONDUCTED AT CLEMSON UNIVERSITY, AND I WISH TODAY TO EMPHASIZE THE NEED FOR THEIR CONTINUED FUNDING.

MR. CHAIRMAN, THE FIRST OF THESE HIGH-PRIORITY PROJECTS IS THE "AGRICULTURAL ADJUSTMENT IN THE SOUTHEAST THROUGH ALTERNATIVE CROPPING SYSTEMS PROGRAM." THIS PROGRAM IS BEING JOINTLY CONDUCTED BY CLEMSON UNIVERSITY, THE UNIVERSITY OF GEORGIA, AND NORTH CAROLINA STATE UNIVERSITY.

THE SOUTHEAST HAS TRADITIONALLY BEEN CHARACTERIZED BY A LARGE NUMBER OF SMALL, ONE-CROP, FAMILY FARMS. DECLINING COMMODITY PRICES, WEAK DEMAND, AND OTHER ADVERSE ECONOMIC CONDITIONS HAVE PLACED A GREAT STRAIN ON A NUMBER OF THESE FARMS. THE ALTERNATIVE CROPPING PROGRAM IS A RESEARCH AND EDUCATION EFFORT THAT HAS BEEN SUCCESSFUL IN MEETING ITS OBJECTIVE OF DEVELOPING AND IMPLEMENTING CROP DIVERSIFICATION. THERE IS STILL MUCH WORK THAT NEEDS TO BE DONE IN THIS AREA. ACCORDINGLY, MR. CHAIRMAN, I REQUEST THAT THE

SUBCOMMITTEE APPROPRIATE THE REQUESTED $300,000 TO CONTINUE THIS IMPORTANT PROGRAM.

MR. CHAIRMAN, ANOTHER PRIORITY RESEARCH PROJECT IS THE "PEACH TREE SHORT LIFE RESEARCH." PEACH TREE SHORT LIFE REFERS TO THE PREMATURE DEATH OF PEACH TREES WHICH RESULTS PRIMARILY FROM ROOT SYSTEM DAMAGE INFLICTED BY VARIOUS NEMATODES. IT IS ESTIMATED THAT THIS DISEASE KILLS BETWEEN 80,000 AND 100,000 TREES IN THE SOUTHEAST EACH YEAR, AND FINANCIAL LOSSES EXCEED SEVEN MILLION DOLLARS.

PRIOR TO 1979, FARMERS WERE ABLE TO SUCCESSFULLY LIMIT NEMATODES WITH THE USE OF THE SOIL FUMIGANT DBCP. HOWEVER, DBCP USE HAS BEEN BANNED, AND NO EFFECTIVE REPLACEMENT IS AVAILABLE. IT WAS FOR THIS REASON, TOGETHER WITH THE IMPORTANCE OF THE PEACH INDUSTRY TO THE SOUTHEAST, THAT CONGRESS FIRST FUNDED RESEARCH IN 1981 TO COMBAT THE DISEASE.

THIS RESEARCH HAS BEEN SUCCESSFUL IN FURTHER IDENTIFICATION OF THE CAUSE OF PEACH TREE SHORT LIFE. IN ADDITION, A VARIETY OF ECONOMICALLY VIABLE HORTICULTURAL PRACTICES HAVE BEEN IDENTIFIED WHICH LESSEN THE INCIDENCE OF PREMATURE DEATH IN NEMATODE-INFESTED PEACH TREES. HOWEVER, MUCH REMAINS TO BE DONE, AND IT CANNOT BE DONE WITHOUT CONTINUED FUNDING.

MR. CHAIRMAN, THE AGRICULTURAL RESEARCH SERVICE (ARS) OF THE UNITED STATES DEPARTMENT OF AGRICULTURE OPERATES A VEGETABLE RESEARCH LABORATORY IN CHARLESTON, SOUTH CAROLINA. THIS FACILITY WAS BUILT IN 1936 TO HOUSE FIVE SCIENTISTS. OVER THE PAST 50 YEARS, SCIENTISTS AT THE LABORATORY HAVE DEVELOPED OUTSTANDING INSECT, DISEASE, AND NEMATODE RESISTANT VEGETABLE VARIETIES AND LINES, INCLUDING THOSE OF TOMATO, WATERMELON, CANTALOUPE AND GREEN BEANS. THESE IMPROVED VARIETIES HAVE SUBSTANTIALLY BOLSTERED THE FRESH MARKET, VEGETABLE INDUSTRY IN THE SOUTHEAST.

CURRENTLY, THE VEGETABLE LABORATORY HOUSES A STAFF OF 35 PERSONNEL. THE BUILDINGS AT THE FACILITY ARE OLD, COSTLY TO MAINTAIN AND INADEQUATE FOR MODERN STATE-OF-THE-ART RESEARCH. IN ADDITION, THE FACILITY IS LOCATED ON BOTH SIDES OF A BUSY

HIGHWAY. SEVERAL SERIOUS ACCIDENTS HAVE OCCURRED AS LABORATORY PERSONNEL HAVE ATTEMPTED TO CROSS THE HIGHWAY.

THE USDA IS CURRENTLY CONDUCTING A FEASIBILITY STUDY ON A NEW VEGETABLE RESEARCH FACILITY IN CHARLESTON. IT IS MY UNDERSTANDING THAT THIS STUDY SHOULD BE COMPLETED SHORTLY, AND I WOULD URGE THE SUBCOMMITTEE TO COMMIT $1.4 MILLION FOR THE ARCHITECTURAL AND ENGINEERING PHASE.

MOREOVER, I WOULD SUGGEST THAT THE SUBCOMMITTEE'S REPORT ALLOW FOR THE JOINT PLANNING AND USE OF THE FACILITY BY ARS SCIENTISTS AND SCIENTISTS FROM THE SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION. I BELIEVE THE JOINT FACILITY AND RESEARCH WOULD BE AN EFFICIENT USE OF FEDERAL FUNDS, AND WOULD MAKE THIS THE PREMIER VEGETABLE RESEARCH CENTER IN THE WORLD.

MR. CHAIRMAN, TODAY I WOULD ALSO LIKE TO ADDRESS THE FUNDING OF ANOTHER IMPORTANT GOVERNMENT AGENCY, THE SOIL CONSERVATION SERVICE. THE GOAL OF THIS AGENCY IS TO PROTECT AND PRESERVE OUR NATION'S VALUABLE SOIL AND WATER RESOURCES. THE 1985 FARM BILL CONTAINED A NUMBER OF CONSERVATION PROVISIONS. THIS HAS INCREASED THE ACTIVITIES OF THIS AGENCY, AND I HOPE THAT THE SUBCOMMITTEE WILL ENSURE THAT ADEQUATE FUNDING IS AVAILABLE TO ADDRESS THE INCREASED RESPONSIBILITIES OF THE SOIL CONSERVATION SERVICE.

MR. CHAIRMAN, I WOULD ALSO LIKE TO TAKE THIS OPPORTUNITY TO ENCOURAGE MEMBERS OF THIS SUBCOMMITTEE TO SUPPORT CONTINUANCE OF THE RURAL ELECTRIFICATION ADMINISTRATION DIRECT LOAN, AND LOAN GUARANTEE PROGRAM. THESE PROGRAMS HAVE BEEN OF TREMENDOUS ASSISTANCE TO RURAL COMMUNITIES ACROSS THE NATION.

TERMINATION OF THESE IMPORTANT PROGRAMS WOULD RESULT IN INCREASED RATES FOR ELECTRIC AND TELEPHONE SERVICES AND THEREBY WOULD LESSEN THE QUALITY OF LIFE IN RURAL AMERICA.

MR. CHAIRMAN, BEFORE I INTRODUCE MY TWO GUESTS, I WOULD LIKE TO SAY THAT I AM ENCOURAGED BY RECENT AGRICULTURAL STATISTICS THAT SHOW AN INCREASE IN FARM INCOME, ENHANCED U.S. COMPETITIVENESS IN THE WORLD MARKET, AND A DECREASE IN GOVERNMENT HELD COMMODITIES. IT IS IMPERATIVE THAT WE MAINTAIN OUR COMPETITIVE EDGE, AND

AGRICULTURAL RESEARCH IS ONE OF THE PRIMARY ASPECTS NEEDED.

MR. CHAIRMAN, I WOULD NOW LIKE TO INTRODUCE TWO GENTLEMEN FROM SOUTH CAROLINA WHO WILL ADDRESS THE TWO RESEARCH PROGRAMS AT CLEMSON UNIVERSITY: DR. OTTIE J. DICKERSON AND DR. J. EDWIN FARIS.

DR. DICKERSON IS THE HEAD OF THE DEPARTMENT OF PLANT PATHOLOGY AND PHYSIOLOGY AT CLEMSON. HE IS THE COORDINATOR OF THE "PEACH TREE SHORT LIFE RESEARCH PROGRAM."

DR. FARIS IS A PROFESSOR OF AGRICULTURAL ECONOMICS AT CLEMSON, AND HE WILL ADDRESS THE "ALTERNATIVE CROPPING PROGRAM."

UNDER THE LEADERSHIP OF THESE TWO FINE GENTLEMAN, CLEMSON HAS BEEN CONDUCTING RESEARCH TO IMPROVE THE ECONOMIC SITUATION OF OUR FARMER, WITH PARTICULAR ATTENTION BEING GIVEN TO SOLVING AGRICULTURAL PROBLEMS IN THE SOUTHEAST.

I APPRECIATE YOUR ALLOWING THESE GENTLEMEN TO ADDRESS THE COMMITTEE TODAY, AND I AM CONFIDENT THEIR TESTIMONY WILL BE BENEFICIAL IN YOUR EFFORTS TO PREPARE THE FISCAL YEAR 1989 AGRICULTURE, RURAL DEVELOPMENT, AND RELATED AGENCIES APPROPRIATIONS BILL.

## STATEMENT OF DR. O.J. DICKERSON

Mr. Chairman, Members of the Committee, I appreciate the opportunity to appear before you today.

Continued support through a special grant ($200,000 for 1989) for Peach Tree Short Life research in the Southeast to be centered at Clemson University is requested.

A disease syndrome known as Peach Tree Short Life is responsible for premature death of peach trees in the southeastern United States and other peach growing areas and is characterized by sudden collapse in the springtime of otherwise apparently healthy trees, usually just before, during, or just after bloom.

Peach Tree Short Life adds a significant, chronic burden to the cost of peach production. Between 80,000 and 100,000 trees die in the Southeast each year, often before costs of orchard establishment are recovered. Financial losses from tree death exceed seven million dollars annually and additional losses accrue from reduced growth of young trees, lower yields of fruit and costs of nematicide treatments. More than two-thirds of the peach acreage in the Southeast potentially suffers from the Peach Tree Short Life syndrome.

A major portion of the proposed research is aimed at identifying peach trees and related plants that have resistance to the ring nematode (Criconemella xenoplax). This nematode is the single most important factor associated with the disease that cannot be controlled.

Other areas of research will continue to receive attention in an effort to find ring nematode controls that can be implemented quickly and selectively. Several herbaceous plants that may be used as ground covers under peach trees have been found to inhibit ring nematode reproduction. Knowing physiological changes incited by ring nematodes will help improve understanding of the mechanisms involved in tree injury caused by ring nematodes. Interactions between ring nematodes and bacterial and viral pathogens also will be studied. The search for microorganisms that could be used as biological controls for the ring nematode will continue. Any of these studies may provide that new approach to control of Peach Tree Short Life.

## JUSTIFICATION

Peach Tree Short Life (PTSL) continues to be the major disease problem causing severe tree losses in South Carolina. Losses determined for 1986 were 84,000 trees with about 80% of this occurring in the Ridge region. Significant losses due to PTSL occur in other peach production areas in the state, but it remains the leading cause of tree losses in the Ridge region.

Ring nematodes are one of the most important factors contributing to development of PTSL and control of these nematodes is critical for reduction of tree losses. Although an effective control program was developed in the mid-1970's, the nematicides recommended for the program have proved inappropriate due to concerns about environmental pollution and risks to human health. Currently there are no nematicides that can completely replace those previously recommended. Thus control of the ring nematode has become difficult and expensive. Currently the primary thrust for research is alternative approaches for management of the nematode problem. Special emphasis has been given to discovery and development of rootstocks with superior potential for survival on PTSL sites.

## CURRENT AND PROJECTED RESEARCH PRIORITIES

Four areas with substantial potential for development of useful disease management techniques will continue to be emphasized. First is incorporation of resistance to ring nematode in peach rootstocks to improve survival in sites conducive to PTSL. Commercial cultivars could be grafted on these plants to escape the effects of the disease. This would limit the need for other nematode controls but still requires many more years of research. The second is identification of plants that inhibit reproduction of ring nematode and are useful as ground covers for the orchard floor. If successful it could be implemented much sooner then resistant rootstocks but is unlikely to be as effective. The third is development of a better understanding of the changes in peach physiology caused by ring nematode. This information could lead to novel approaches to the control of PTSL. Fourth is identification of soil microorganisms that are detrimental to ring nematodes and could be used in biological control. Research results from initial studies of each of these areas have been encouraging.

In field tests initiated in 1982, 143 lines of peach and related species have been grown in a site conducive to PTSL at the Sandhill research and Education Center. At the USDA SEA Station in Byron, Georgia a similar planting includes 108 of the same lines. These tests are beginning to indicate which lines are most sensitive to the PTSL as measured by tree death that has occurred in these lines. Surviving lines will provide the nucleus for breeding a rootstock resistant to PTSL. Although 2-6 more years will be needed to select the most promising lines for further work, some lines have been selected for further testing this year. A full-scale orchard test will be planted in a PTSL site this spring with six selections. Observations over the next 6-10 years will determine their suitability as new rootstocks for control of ring nematodes and PTSL.

Many seedlings from peach trees and other closely related species in the germplasm collection at Clemson have been screened for their suitability as a host for the ring nematode in an improved greenhouse test. Over 1000 seedlings collected from 169 cultivars were tested 1-3 times last year. Up to 3000 additional seedlings will be tested in the coming year. Those that inhibit nematode reproduction in three consecutive tests will be propagated and planted in field tests on PTSL sites beginning next year.

Observations continue to be made on nematode-resistant plants that may be used as ground covers in peach orchards. Buckhorn plantain was very suppressive to ring nematode reproduction while it was growing. Nimblewill and camphorweed also appeared to restrict nematode reproduction. Large scale tests may be attempted in the near future if results continue to offer promise of effectiveness.

Field trials have been planted to determine the significance of certain virus diseases to tree survival on PTSL sites. Virus infected and virus free plants were planted last spring and will be observed for the next few years. Any correlations between virus infection and tree death will be used to identify viruses that reduce tree survival. Preliminary evidence indicates that some viruses may play an important role in the PTSL syndrome.

Researchers have assumed that the ring nematode and other factors associated with onset of symptoms of PTSL cause changes in the physiology of peach trees. Bacterial spot is more severe on 'Blake' cv. when plants are infested with ring nematodes. This experimental system offers great potential for analysis of the changes in peach physiology caused by the nematode. A research program has been initiated to examine this phenomenon. Work on the effects of the nematode on ethylene metabolism in peach trees has continued as well. Final results of both of these studies could significantly improve understanding of the mechanisms by which the nematode interferes with normal metabolism in peach trees.

The fungal parasite that has been studied as a potential agent for biological control of ring nematode has proven to be widespread. In some cases it has caused substantial reductions of nematode population densities. However, by itself the fungus does not seem to offer reliable control of ring nematode. New methods were developed in the past year that will allow culture of the ring nematode in the laboratory. This technique will allow more detailed studies of potential new biological control agents and is especially important because it will allow study of obligate parasites. Obligate parasites have shown the most promise as biological control agents for other pests.

## PROSPECTS FOR SUCCESS

The recent observations of peach lines with detectable resistance to the ring nematode and survival for five years in field sites conducive to PTSL are very encouraging. It appears likely that other lines will be identified with useful characteristics and full-scale orchard tests with potential new rootstocks have commenced. Results from tests with ground covers that suppress ring nematode development are encouraging and will be continued. If suitable species can be developed, this method of managing the damage caused by ring nematodes can be quickly implemented. Within 1-3 years the utility of this approach should be evident.

Techniques for study of peach physiology are well developed and several experimental systems have been identified that offer excellent potential for results. Improved techniques for study of biological control agents have been developed. All of these programs offer substantial potential for new understanding and new methods to manage PTSL in the near future.

## STATEMENT OF DR. J. EDWIN FARIS AND DR. LARRY L. BAUER

### ALTERNATIVE CROPPING SYSTEMS

The opportunity to present testimony on behalf of the Tri-State Vegetable project is appreciated. The project is entitled, "Agricultural Adjustment in the Southeast through Alternative Cropping Systems." It was initially funded during FY 1984 and we are asking your support for a fifth year in FY 1989. We are requesting funding in the amount of $300,000 under a USDA special grant. The funds will be used to augment research underway in three Southeastern Land Grant Universities (Clemson, N.C. State, and Georgia) to seek solutions that will aid Southeastern farmers in their efforts to adjust to changing economic conditions and a changing agricultural policy environment.

Economic conditions have been unfavorable for farmers and they are searching for ways to survive in a changing environment. The Land Grant Universities have a basic responsibility to assist farmers through this period and to help preserve the basis of our food and fiber system. Resources are being reallocated in universities to address these critical problems. However, our resources are insufficient and we seek your support in our efforts to seek alternatives and provide information and analysis required for farmers to make wise and prudent decisions. In the absence of sound analysis and information, incorrect and costly decisions could exacerbate the current financial crisis and lead to further trauma in the agricultural sector.

The agricultural sector has been in a depressed state since the middle 1970's. The viability of the family farm structure is in question. The situation in the Southeast may be worse than elsewhere because of typically lower yields and higher production costs. Major field crop enterprises have not yielded large profits for even the above average farmers during the 1980's, and farmers with average yields have not broken even. The financial situation in agriculture has resulted in high production costs, declining commodity prices, weak demand, high debt loads, and growing commodity stocks have resulted in serious cash flow problems for farmers. The situation remains serious with a large number of farm bankruptcies and farms with debt repayment problems.

Continued survival of agriculture in the Southeast, characterized by a large number of relatively small farms, is dependent upon the extent to which the industry can adjust to changing policy and economic conditions. Economic risk could possibly be reduced by shifting dependence from traditional crops to systems that include new crops with viable markets. It appears that the Southeast might have a comparative advantage in the production of selected vegetable crops. The high level of management necessary for tobacco, for example, could be used for the production of vegetables. The climatic conditions are amenable to multiple cropping systems, and the Southeast is relatively close to population centers. Labor is often underemployed on farms in the Southeast. Irrigation is either a fact or a possibility on many farms in this region.

Population is increasing throughout the Southeast. The area is a deficit producer of most vegetable and small fruit crops. If vegetable crop production is to be expanded, there is a critical need for research to evaluate production systems and marketing alternatives in the population centers of eastern U.S. The concern of the consumer with nutrition is resulting in increasing demand for vegetables. The potential for profitable production is favorable not only in the Southeast but nationwide. The models and technology developed in this research will transfer easily to other areas of the Southeast and the nation. Geographically, the Southeast has transportation advantages in being closer to the eastern markets and population centers, and has established seaports at Charleston, Wilmington, and Savannah for the possible development of export markets.

In summary, the availability and quality of resources in the Southeast; land, labor, capital, and management; all favor an increase in vegetable production. The nutritional consciousness of consumers is resulting in an increased demand for vegetables. Population is increasing throughout the Southeast. The area is a deficit producer of most vegetable and small fruit crops.

Historically, the Southeast has produced vegetables and small fruits. More research is needed to develop improved varieties and production procedures to realize the higher yields possible in the region. With a few exceptions, such as pickling cucumbers, tomatoes, and sweet potatoes, production has been primarily for fresh market and directed mostly to local consumption. If vegetable production is to be expanded, there is a critical need for an evaluation of production systems and marketing alternatives. The potential for increased sales in the population centers of the Eastern U.S. must be thoroughly investigated. The feasibility of developing a vegetable processing industry must also be studied. The expansion of the processing industry would produce added value and stimulate employment in the region.

The basic questions are how competitive can the Southeast be in the production of vegetables, and which vegetables are the most competitive? Georgia, North Carolina, and South Carolina have joined together in a research and education effort to provide the agricultural sector with needed information on the economic and biological potentials for producing and marketing certain vegetables. The objectives of the project are:

1. Identify commodities which have the most potential for expansion.
2. Develop production practices and determine the feasibility of competitively producing specific vegetable crops on family farms in the three state region.
3. Evaluate alternative domestic and international markets for new and expanded production of selected vegetable crops.
4. Develop and disseminate specific recommendations on expanded production of vegetable crops.

Progress has been been toward meeting these objectives. This effort is truly regional in that six academic departments in three universities are engaged in a cooperative and closely coordinated research effort. It is interdisciplinary with horticulturists and agricultural economists working together in the establishment and execution of goals. Field trials are being conducted at seven sites in the three states and the economic analysis is being conducted in each of the states.

It is important to note that production and marketing possibilities are being considered simultaneously. If markets are available but production is not economically feasible or vice versa, the crop will not be considered further. This will provide both farmers and agribusiness firms with a better idea of both the biological and economic feasibilities of producing vegetable crops.

Previous research under this project has identified several crops with potential for providing southeastern farmers with viable options. Data from three years of plot work is currently being analyzed. Progress is being made in the development of cropping systems for farmers. Remaining plot work will address cultural practices. Specific production problems have been identified that will be studied by interdisciplinary teams.

Studies have been conducted on the seasonal succession objective. Spring plantings of all crops except cauliflower produced very good commercial yields and excellent quality. Fall cucumbers and muskmelons were grown with plastic mulch and drip irrigation in an effort to reduce foliar disease. A study of watermelons grown on plastic mulch with drip irrigation indicates that plant population does not affect the yield of marketable fruit.

Results from the study of fertigation, plastic mulch, and sprinkler and drip irrigation on peppers and tomatoes indicate yields are increased by both plastic mulch and irrigation. Alternative colors of plastic mulch were investigated and results indicate that color can influence seedling establishment and development, and subsequent yields. Research has been initiated on the effectiveness of photodegradable mulches as a way to reduce end-of-season clean up cost for regular plastic mulch.

Nineteen advanced breeding lines and commercial varieties of broccoli were evaluated for heat tolerance. Research on stand establishment of peppers was begun as a result of problems observed on plots during the past three years. Plant competition for light and nutrients are being investigated. Field experiments will continue to determine the advantages of chemical or hand pruning on yields. Experiments are under way to determine nutrient requirements to enhance tomato transplant vigor, and the effect of cold stress during stand establishment.

The market window analysis indicates that there are potentially favorable windows for snap beans, green peppers, and cabbage. Estimates have been made of market flexibilities to determine how much prices can be expected to decrease with increases in market volumes. A reactive programming spatial equilibrium model is also being developed to address this problem. One of the primary objectives of this research is to investigate the feasibility of changing planting dates so commodities can be harvested when prices are less sensitive to changes in quantity. Price flexibilities, coupled with seasonal effects, allow comparisons with production and transportation costs to identify effective market windows for vegetable crops produced in the Southeast. A study utilizing the price flexibilities to analyze strength of demand for various vegetable crops is nearing completion.

Information from a survey of 600 first handlers has been used to develop a structural analysis of vegetable markets. The firms are classified according to the functions they perform; how, when, and where they operate; and their size relative to other firms and to the market as a whole. The commodities handled are defined in terms of the source of supply, and the market where sold. The potential capacity of these handlers to market expanded production is being evaluated. Respondents were asked their willingness and requirements for dealing with new suppliers. This information will help to determine the industry "norm" for dealing with new suppliers. A survey of grocery store chains is also being conducted to investigate the requirements necessary for producers to access these as a potential market for vegetables.

A study was undertaken to provide insight into the future demand for vegetables in each area of the world and provide information useful to potential U.S. exporters and producers of these commodities. Results indicate that the greatest potential for the U. S. to increase its export market share exists in Asia and the EEC. Approximately 88% of the Asian importers and 60% of EEC importers predicted increasing levels of imports. The results also indicate that an increased market share is contingent on a total commitment to satisfying the demands of the export market at competitive prices. Such demands encompass specific packaging requirements, exact quality, quantity, and time specifications for each importing firm in the country of destination.

Work has been completed on the relative competitiveness of traditional row crops and eleven selected fresh vegetable crops. Generally, results indicate that the selected fresh vegetable crops compete favorably with traditional row crops. However, fresh vegetable crop production is restricted by consumer demand. Therefore, total acreage utilization via fresh vegetable production is relatively small.

A microcomputer program, Budget Planner, was developed to assist farmers and agricultural advisors construct crop enterprise budgets. Multiple enterprise budgets can be developed for any crop or combination of crops, including those sequentially grown. In addition, the cost effectiveness of a specific system such as conservation tillage or integrated pest management may be evaluated. Program disks and manuals were distributed to all land grant universities and to all county extension offices in North Carolina. All project cooperators and a number of county agents in Georgia and South Carolina also received the Budget Planner. Work on a second software program, the Crop Planner, was also completed. After crop enterprise budgets are developed and the availability of resources identified, Crop Planner determines which crop combination will result in the highest farm net returns. Crop Planner will be released in early 1988 after pretesting and revisions are complete.

An economic engineering approach was used to determine performance rates for various pieces of equipment used in the production and packing of peppers and cucumbers. Least cost equipment combinations and irrigation systems were selected for 30, 60, 100, and 200 acre farm units. Packing costs for sheds capable of packing 120, 200, 300, 500, and 800 cartons per hour were estimated. The results indicate there are substantial economies associated with the farm firm as it increases in size. Estimated packing costs decrease even more. It appears that vegetable producers in North Carolina, South Carolina, and Georgia can be effective competitors when they produce at least 100 acres crops such as peppers or cucumbers. Usually, it will be necessary for producers to join together in order to attain the volume of production needed for an economically efficient packing plant. The results strongly support the thesis that smaller farms in the Carolinas and Georgia can be effective competitors.

The development of an implementation plan is crucial for the proposed research. Traditional techniques will continue to be used, for example, publicity through field days, newspaper articles, television news reports, etc. The cornerstone of the implementation plan will be one of providing information. A proposal is being developed to sponsor a major conference or symposium. Potential buyers of vegetable crops grown in the three state area would be invited. Included would be major food store buyers, fast food chains, and brokers, among others. Potential producers and other industry leaders would also be invited. The major objective of the conference would be to present results in order for potential buyers and sellers to make decisions on entering or expanding their involvement in the vegetable industry in the three state area. If expansion did occur, the academic institutions would then address specific problems on an industry wide basis. It is hoped the state departments of agriculture in the three states will cooperate in sponsoring this conference.

This project does not stand alone. Several agribusiness firms have expressed interest in supporting additional research. All indications are that the high level of interest in this project by farmers, agribusinesses, and leadership will continue. The major concern is to have sufficient research results available to provide the needed assistance.

Although the research is being conducted in the three states of Georgia, North Carolina, and South Carolina, the results will transcend state boundaries. The close linkage and cooperation between states, and between the research and educational activities of two disciplines serves as a model for future collaborative efforts. This research has stimulated research in other areas of the country.

The research is oriented toward providing farmers and agribusinesses timely information on vegetable production and marketing opportunities. Information forthcoming will be directly applicable to farm situations so that the adoption of the production and marketing systems should be relatively straightforward. If farm income increased by $100 per acre as a result of producing vegetables, it would require only 10,000 acres to amount to a one million dollar gain. This is indeed small acreage in view of the fact that one percent of the soybean acreage in the three states amounts to more than 60,000 acres. In addition to the farm sector, there are potential gains to the transportation and handling sectors, and to the processing and agricultural supply sectors. Fruits and vegetables have one of the highest "value added" multipliers in the agricultural sector.

The support for this project is appreciated. This research has been successful up to now in meeting its objectives. The program is at a critical point. Research results need to be refined and the important implementation process accomplished. Additional funding is needed for the fifth year if this project is to effectively complete its research program and carry out the implementation phase. Plot work needs to continue to thoroughly investigate cultural practices. Detailed analysis at the farm level needs to be conducted to estimate impacts on income and income variability, i.e. risk, of including vegetable crops. The marketing analysis is of crucial importance and needs to be completed. Perhaps most importantly, implementation needs to be accomplished. The proposed conference will be costly but, in the opinion of those involved with the project, this is the best and proper method to transfer research results and to provide the basis for industry incentives in the three state area.

The opportunity to make this presentation is appreciated, as is your support for this project. We feel the Tri-State Vegetable project is of vital importance to the farmers of the southeast.

## RUTGERS UNIVERSITY

### STATEMENT OF LESLIE COPELAND ON BEHALF OF RUTGERS UNIVERSITY

Senator COCHRAN. We understand that the witness from Rutgers who was scheduled to testify is not here, but that Leslie Copeland is here and would like to present testimony. We ask you to come forward, please.

Mr. COPELAND. Thank you, Senator. In the interest of time, you have the written statement from Rutgers University. I believe that the president of Rutgers, if he were here today, would, I think, make three very simple points: First, we are here to support the USDA program which provides matching funds for construction of agriculture-related facilities at American research universities. This program continues a tradition of a Federal role in the Federal-State university research effort which has existed since at least 1862.

Second, Rutgers will be seeking funds for the construction of a plant bioscience complex under this program. The study for that program was mandated by Congress last year. The draft of that survey, which is included or appended to the testimony, indicates the needs and the value of the Center for Agricultural Molecular Biology at Rutgers, which will be headed by Dr. Peter Day, a world renowned agricultural biotechnologist and geneticist and include at least 16 world class scientists.

Under that program, Rutgers will be looking, over the years, for a Federal match of some $37.2 million to a State university match in excess of $40 million.

Third, I think we simply want to thank this committee for its continued support of the Federal role, Federal-State university partnership that has underwritten so much of the agricultural industry.

Senator COCHRAN. Thank you very much. I do have the prepared testimony for Dr. Bloustein, the president of Rutgers, and we have made that a part of the record in its entirety. I understand from this testimony that the State of New Jersey is proposing to contribute some $47.4 million to this project, the South Jersey Center, and seeks Federal matching funds of $37.2 million.

Mr. COPELAND. Yes, sir.

Senator COCHRAN. We appreciate your taking the time to be here and highlighting the need for this center for agricultural molecular biology at Rutgers. It does sound like a very interesting and important project and program, and we will be sure that the other members of the subcommittee have this information brought to their attention. We thank you for coming to testify.

Mr. COPELAND Thank you, sir.

Senator COCHRAN. Thank you very much.

[The statement follows:]

## STATEMENT OF EDWARD J. BLOUSTEIN, PRESIDENT, RUTGERS UNIVERSITY

I am Edward J. Bloustein, President of Rutgers, The State University of New Jersey and I am here today to testify on behalf of the United States Department of Agriculture Program which provides matching funds for construction of agricultural related facilities at American research universities. This program continues a great tradition of an appropriate federal role in the federal-state-university research and service partnership which supports our agricultural industry and which has existed since the Morrill Land-Grant Act of 1862.

Rutgers will seek matching funds for construction of a Plant Bioscience complex under this program. This complex will meet a national need for basic research in the Plant Sciences to underpin the challenges facing agriculture in the future, i.e., profitability and reduced input of environmentally sensitive compounds such as fertilizers and chemical pesticides.

The complex will house the Center for Agricultural Molecular Biology, a high-tech complex consisting of 16 world class scientists under the directorship of Dr. Peter Day, a world renowned agricultural biotechnologist and geneticist. Also housed in the complex will be the academic departments of Plant Pathology, Horticulture and Crop Science, Entomology and Plant Bioscience.

The philosophy of the program is to integrate basic and applied research with extension activities to insure that agriculture in the Northeast remains profitable and environmentally sound. The complex will also provide training for undergraduate and graduate students in plant biology to meet the growing demand for and anticipated shortage of such scientists.

The 280,000 square foot complex will contain state-of-the-art laboratories, a research library, teaching classrooms and laboratories, and attached greenhouses. Associated with the center will be a branch facility in southern New Jersey for biological risk assessment, a center of critical importance for the testing of engineered plants and microorganisms.

The complex including the South Jersey Center is estimated to cost $84.6 million. The complex will be partially funded by Rutgers University bonds ($2.8 million), and a New Jersey State Bond Issue for Jobs, Education and Competitiveness ($28 million), State appropriations ($14.6 million), and corporate contributions ($2.0 million). Therefore, the State of New Jersey will provide $47.4 million and seeks Federal matching funds of $37.2 million.

This facility is, of course, of great importance to Rutgers and the State of New Jersey. Agriculture in New Jersey is diverse, profitable, and intensive. But agriculture is threatened by urbanization and environmental saturation, problems plaguing all agriculture in the Northeast and soon to face other states.

This facility also has important national consequences in sustaining a safe, secure and environmentally sensitive agriculture for the nation. You will recall that Congress last year mandated that USDA direct the University to conduct a feasibility study for such a facility in plant biosciences at Rutgers. That study has now been completed, and a copy of it is appended to this statement. The study verifies the appropriateness of federal government participation in the construction of this facility. I urge your approval of the program to provide matching funds.

## SUBCOMMITTEE RECESS

Senator **Cochran**. This concludes our hearing today. Our next hearing will be held tomorrow in this same room, beginning at 9:30 a.m. At that time, we will continue to hear from public witnesses. Until then, the subcommittee will stand in recess.

[Whereupon, at 3:35 p.m., Wednesday, April 27, the subcommittee was recessed, to reconvene at 9:30 a.m., Thursday, April 28.]

# AGRICULTURE, RURAL DEVELOPMENT AND RELATED AGENCIES FISCAL YEAR 1989 BUDGET REQUESTS

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THURSDAY, APRIL 28, 1988

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
*Washington, DC.*

The subcommittee met at 9:36 a.m. in room SD-138, Dirksen Senate Office Building, Hon. Tom Harkin presiding.

Present: Senators Burdick, Harkin, and Grassley.

## NONDEPARTMENTAL WITNESSES

### SUBCOMMITTEE PROCEDURE

Senator **HARKIN**. The Subcommittee on Agriculture, Rural Development and Related Agencies of the Senate Appropriations Committee will come to order. The subcommittee this morning will be having the final day of our hearings with nondepartmental witnesses. I would like to welcome all of today's witnesses and remind you that your statements will be made a part of the record in their entirety. We ask that you please summarize them briefly within a period of about 5 minutes.

We have a stopclock set up here, and we ask that you keep your eye on it and finish when the light turns red. I would further like to mention that the subcommittee cannot receive for the record any copyrighted material for publication unless arrangements have been made in advance to obtain the permission of the copyright owner to include that material in the hearing transcript.

This notice is given to protect copyright owners as well as the subcommittee and witnesses.

This morning, we start the witness list with Charles Edson, legal counsel for the Council for Rural Housing and Development, who will be discussing the Farmers Home Administration elements.

Welcome to the subcommittee, Mr. Edson, and please proceed as you so desire.

### COUNCIL FOR RURAL HOUSING AND DEVELOPMENT

### STATEMENT OF CHARLES L. EDSON

Mr. **EDSON**. It is a pleasure to be here, Mr. Chairman. For the record, my name is Charles Edson of the Washington, DC, law firm of Lane & Edson, P.C. We are counsel to the Council for Housing and Rural Development, and let me say, in 20 years of giving testimony, I have never gone on early, so this does set some kind of record.

I would ask that my prepared testimony be submitted for the record, and I will briefly summarize the views set forth therein. The council represents 245 developers and financiers of section 515 housing from all over the country.

The testimony goes into rural housing needs, which I am sure is familiar to the chairman, and in the success of this program in meeting that need. I just want to point out that GAO did a report last year studying our program, and found it cheaper than vouchers, which utilizes existing housing in housing the rural poor, and that our average tenant income is about $8,000 to $9,000 a year, which is pretty low income. It is a proud record.

There are a number of specifics I would like to discuss with the committee. The Tax Reform Act of 1986 made significant changes in how real estate is developed, and it affected us like everyone else. They took away the incentives of rapid depreciation and other incentives to build low-income housing and replaced it with a low-income housing tax credit that was very highly targeted to low-income people at 50 or 60 percent of median income of the area.

The problem was that in rural areas, that median was so low that the qualifying income was below the income needed to pay what is called basic rent in a Farmer's Home project, the rent at a 1-percent level. The tax credit program could not work in conjunction with 515 unless you made available rural rental assistance, which is a deep subsidy and allows the tenant to pay just 30 percent of his or her income.

Last year it was an initiative of this subcommittee to transfer sufficient funds from the direct loan 515 into this rural rental assistance, 10,000 units, to allow us to build the units we then still had available. We did reduce the total number of section 515 units, but as a tradeoff, those units that we have left we were able to build because of this extra subsidy.

We urge that this be done again for fiscal year 1989. We are working with the Finance Committee and the Ways and Means Committee to try and change the tax credit to make it workable in rural areas without the need for rural rental assistance. Frankly, it is very doubtful that there will be a tax bill this year that will address this substantive issue, and we will have to wait until 1989. The picture in tax legislation, as you well know, is very, very cloudy. The only way we can make this program work is to continue this transfer of rural rental assistance.

We are also asking for a continuation of current funding levels for the 515 program, no increase, even though we have been cut by over 50 percent in the last few years.

There is a new issue that I think you should focus on as a result of the Housing and Community Development Act of 1987, and that is dealing with prepayments. Before 1979, the owner had the right, indeed, the duty, to prepay, and there was a contractual right that he or she had. That right was taken away; it was taken away once in 1979 and Congress gave it back in 1980 because it was retroactive legislation.

Unfortunately, the same sort of retroactivity took place last year, taking away the owner's right.

However, a whole package was worked out between the owner's interest and tenant's interest and the community to have a buy-out by a nonprofit at fair market value instead of the owner prepaying, and that kept the stock in low-income use. It was not a perfect solution from anyone's point of view but the fairest that could be done. The owner got fair market value; low-income occupancy continued.

Originally, this was to be a grant program, but it ended up as just another use of the section 515 funds, and the authorizing law says that, subject to appropriations, up to 5,000 units a year can be bought out under this mechanism.

We are asking that you earmark some of the 515 funds. We are not asking for additional funds, for this equity buy-out to effectuate the authorizing bill provision. Frankly, we have mixed feelings. Because it comes out of our pockets, it means less new projects, but it is a fair way to treat the owner. I notice now that the red light is officially on, so I will bring my testimony to a close.

Senator HARKIN. That is OK. Did you have any final comments?

Mr. EDSON. There is one quick last statement I would like to make. There was another provision in the 1987 act starting with a rural voucher experiment to take some of our 515 and 502 money for a voucher experiment. It said,"Subject to Appropriations Act." Now, that did not deter; the OMB tried to put it through anyway, but farmers over there said, "Hey, can't you read? It says 'Subject to Appropriations Act'." We don't think vouchers are the way to meet rural needs when you don't have the stock to begin with. That is one area where we hope you do not appropriate or take some of our 515 or 502 funds to start the voucher experiment. I think that really is the gist of my prepared testimony.

Senator HARKIN. Thank you very much, Mr. Edson. You are saying that you are asking for the fiscal year 1988 level to be maintained for section 515?

Mr. EDSON. That is correct.

Senator HARKIN. Are you also asking, over and above that, that rental assistance be funded at $275.3 million?

Mr. EDSON. Well, we are saying to maintain the 1988 level, both for direct 515 loans and rental assistance, which were both last year's levels. We are not asking for an increase in either, because last year they took from the 515 pot enough to give us the rental assistance.

Senator HARKIN. I understand. Let me ask you another question. Since the administration continues to propose housing vouchers, would you comment on why you find such a scheme inefficient?

Mr. EDSON. I am not unalterably opposed to vouchers or certificates. For example, in Houston, TX, I think it would be a great program, because you have the stock there, relatively low rents; low-income tenants could utilize the voucher.

In many rural areas of the country, the stock just isn't there, and therefore, you do have to increase the supply. If you can show me a rural area, I am sure that somewhere there are vacancies. I think, frankly, that it would be sinful to build new units, and I think vouchers would work. If we just oppose it in rural areas mainly as a matter of application. We don't ideologically or conceptually oppose the voucher program.

Senator HARKIN. After section 515 rental housing is made available, who is responsible to see that the units are maintained and that they continue to meet safe housing standards?

Mr. EDSON. The owner has that responsibility. Usually he or she manages the so-called mom-and-pop operations or professional management companies. By the way, they are large and very well managed. Our default rate is way less than 1 percent. It is an outstanding rate on that. Management has been pretty good.

Senator HARKIN. One last matter for the record. You said that the average income for a resident in a section 515 project was $8,175.

Mr. EDSON. That is correct.

Senator HARKIN. Then on the next page, you said that defaults are less than 1 percent.

Mr. EDSON. Yes, sir.

Senator HARKIN. A record unmatched by any other Federal housing program.

Mr. EDSON. That is correct.

Senator HARKIN. So you are saying that these people whose income places them below the poverty line are actually making good on their payments?

Mr. EDSON. They pay their rent, and the owner pays his or her obligation to Farmer's Home. Don't forget, default has some very bad tax consequences; there is an immediate recapture of all the depreciation you have taken. So the owner has every incentive not to have a default. The program works; it, is a good program. That is why we are happy to tell you about it.

Senator HARKIN. Thank you for your testimony.

Mr. EDSON. Thank you, Mr. Chairman.

Senator HARKIN. We appreciate it very much.

[The statement follows:]

## STATEMENT OF CHARLES L. EDSON

Mr. Chairman and members of the Subcommittee, my name is Charles L. Edson of Lane and Edson, P. C., Washington, D. C. I am pleased to appear before you today in my capacity as Counsel to the Council for Rural Housing and Development. I appreciate the opportunity to address you on the most important topic of housing for rural America.

The Council for Rural Housing and Development is a national association of over 245 members, including seventeen state associations, actively involved in the Section 515 rural rental housing program. Since its formation in 1980, the Council has been active in the legislative process and has worked closely with the Farmers Home Administration in the regulatory area to help protect and improve the Section 515 program. I think FmHA would agree that the close working relationship we have developed is one of mutual benefit.

### Rural Housing Need

CRHD has appeared before you in the past to report on the dire housing shortage and poverty of rural America. While the Section 515 program produced over 17,400 units of housing in FY87, the great need for housing in rural America continues. In the FmHA service area there are over two million occupied housing units that are "substandard", meaning they lack adequate plumbing and/or are overcrowded. 850,000 households with incomes below the poverty line live in such housing. According to FmHA, in 1987, the average income for a resident in a Section 515 project was $8,175. 68.3% of those tenants had an average income of $6,006.

Although housing needs are the greatest in rural America, the supply of credit to meet those needs is simply not there. Over 500 rural counties do not have federally chartered savings and loans. Rural banks' per capita assets average only $3,400, less than half of the $7,000 per capita average in urban areas. Section 515 loans are made only after it has been proven that conventional financing is not available.

### Section 515 Activity and Effectiveness

High need and low resources impelled Congress to create the Section 515 program which, since its inception in 1963, has provided over 400,000 units of rental housing, serving over 800,000 elderly and low income citizens. The program has been tremendously cost efficient and has an excellent track record. In 1987, the average cost per unit was under $30,000, well below the average cost for new rental units. The Section 515 program is not a grant program; every loan is secured by a mortgage on the assisted housing and will be repaid. Defaults are less than 1%, a record unmatched by any other federal housing program.

A recent study conducted by the General Accounting Office (GAO), "Rural Rental Housing: Cost Information on FmHA's Section 515 Program and Other Options" (GAO/RCED - 87-96) substantiates the success of the Section 515 program in serving very low income households in rural areas. GAO conducted the study at the request of the Senate Committee on Banking, Housing and Urban Affairs and its Subcommittee on Housing and Urban Affairs. In analyzing three rural housing assistance programs, the Section 502 homeownership program, a housing voucher program, and the Section 515 rural rental assistance program, GAO concluded that the Section 515 program was generally the least expensive way to serve very low income households. GAO estimated that with the

Section 515 program, the 20-year subsidy cost of serving an $8,000-income household was $18,797 compared with $29,015 using housing vouchers (assuming an 8-percent federal borrowing rate and a 4-percent inflation rate).

GAO compared the rents of about 1,100 households before and after moving into Section 515 housing and found that 49 percent paid lower rents under the Section 515 program. When rents rose, it was often because households previously lived with family members and paid no rent or because their Section 515 unit was an improvement over their prior housing.

The study reported that 93 percent of Section 515 projects are located in areas with populations under 10,000 and more than half are in areas under 2,500 or less. In addition, most projects are a considerable distance from population centers. About 72 percent of the projects are more than 30 miles from population centers of over 50,000 and about half are over 50 miles away. Clearly, the program is benefiting the rural population to which it is targeted.

## Providing Rural Housing Today

The Tax Reform Act of 1986 has had a significant impact on both the developers and managers of Section 515 projects. Suddenly, occupancy in projects must be very carefully targeted if the owners are to benefit from the 4 percent low income housing tax credit. Since Section 515 projects give off none of the traditional incentives normally available to a developer of multifamily housing projects -- i.e., appreciation and cash flow, the owner must develop and manage the project in a way to be eligible for the tax credit. Last year, during the first year of the tax credit program, it became very clear that Section 515 projects could not be built as viable tax credit projects because tenant incomes were so low in rural areas that the rents which the tax credit program limits the developer from charging tenants were not enough to meet the basic rents required if the developer was to meet payments for the operation and maintenance of the project and pay his 1% mortgage note.

Consequently, CRHD successfully lobbied for the transfer of $115 million from the $669.9 million available in FY87 for new construction over to rental assistance. This allowed each newly constructed unit to be matched up with rental assistance for needy tenants that made up the difference between 30% of the tenant's income and what was required to meet basic rent. These 10,000 additional units of rental assistance helped make it possible to construct tax credit eligible projects.

In FY88 Congress again included the $115 million in the rental assistance funding level, appropriating a total of $275.31 million, with $109 million earmarked for new construction rental assistance. We are working with the Senate Finance and House Ways and Means Committees to make changes to the Tax Reform Act of 1986 to allow for the construction of tax credit projects without the additional rental assistance. Until these changes are enacted into law, we urge continuance of rental assistance in FY89 at its current level.

## Continue Current Funding Levels

The Administration's FY89 budget proposal would replace all current rural housing programs, including the rental assistance program, with a $382 million voucher system estimated to serve 21,200 families. Given the large number of needy rural Americans, these vouchers would be woefully inadequate. In addition, the extant housing stock is simply not available to house all rural Americans with vouchers. A voucher program to supplement the new construction program would be ideal; alone, however, it cannot adequately serve the need for rural housing since the supply is not available.

Although we would obviously like restoration of the funding that has been taken away from the Section 515 program during the last six years of budget stringency, we do not make such a request in the face of the continued necessary efforts to eliminate the budget deficit. However, in view of the deep cuts that this program has already suffered, we urge you to again support funding of the Section 515 program in FY89 at the FY88 level of $554.9 million. For the reasons stated above, we urge that rental assistance be funded at $275.31 million, including 10,000 units of new construction rental assistance.

The President's budget also calls for the reduction of FmHA staff years from 12,675 to 11,700. CRHD strongly opposes this proposal and hopes the Committee will see fit to maintain the status quo. FmHA personnel have traditionally been overworked. CRHD actually came into being in part because of loan processing delays we were experiencing as a result of FmHA staff overload. We doubt it is the case, but if indeed the Administration is correct that the FmHA workload has been reduced by the automation effort (which at this time is not functioning at full capacity) and sale of loans, it can only have brought it down to a more realistic and functional level.

## Appropriate Funds for Prepayment

The Housing and Community Development Act of 1987 establishes a prepayment program for developers with Section 515 loans made prior to December 21, 1979. One of the provisions of the program, which is subject to appropriations, would allow non-profit entities to receive FmHA loans to purchase eligible properties at fair market value if the non-profits agree to maintain the housing as low-income for an additional 20 years. We ask that the Committee move to appropriate funds to carry out this program which is limited to 5,000 units each year so as to allow developers who have been waiting over a year now to realize their contractual rights to prepay their projects.

## Additional Available Funding

Finally, we would ask that any excess funds in the Section 502 single family program be made available for use in the Section 515 program, either as new construction loan funds (since the new construction funding level has decreased substantially with the $115 million transfer to RA) or for servicing RA to assist projects which are experiencing tenant rent overburden. Aside from the philosophical question of how efficiently and effectively America's rural poor are served by a homeownership program, the Section 502 program has not always been able to use its full funding while the Section 515 program could very easily produce more housing if given the additional funds to do so. We are proud of the success of the Section 515 program and stand willing to continue providing this excellent and affordable housing if given the opportunity.

Thank you very much, Mr. Chairman. I would be happy to answer any of your questions.

## IOWA STATE UNIVERSITY

### STATEMENT OF DR. BEVERLY CRABTREE, DEAN, COLLEGE OF FAMILY AND CONSUMER SCIENCES

### ACCOMPANIED BY DR. JACQUELINE DUPONT, CHAIR, DEPARTMENT OF FOOD AND NUTRITION

Senator Harkin. Our next witness is Dr. Beverly Crabtree, the dean of the College of Family and Consumer Sciences at Iowa State University. Dr. Crabtree is also a member of the Joint Committee on the Future of Cooperative Extension for the USDA. She is accompanied by Jacqueline Dupont who chairs the Department of Food and Nutrition at Iowa State. They will be testifying on the proposed Nutrition Research Center at Iowa State University.

This center, as I understand it, would investigate how individuals make their food selections, ways that the selection process can be enhanced, and possibilities for improving the design of foods that are available in the marketplace. The approach would be integrated involving food producers, processors, marketers and the consumer. We have been joined by our distinguished colleague from Iowa, Senator Grassley.

Senator GRASSLEY. I do not have an opening statement.

Senator HARKIN. OK. Welcome to the subcommittee. Thank you, and please proceed.

Dr. CRABTREE. Thank you, Senator.

Mr. Chairman, I am pleased to have the opportunity today to testify before the Senate Agriculture Appropriations Subcommittee. I have with me a written statement which, with your approval, I would offer for the record. In the interest of time, I will summarize the main points of testimony and as indicated, I am the dean of the College of Family and Consumer Sciences at Iowa State University and Dr. Dupont is the chair of the Department of Food and Nutrition at Iowa State University.

My colleagues at Iowa State University have identified a significant gap in this whole area of Federal human nutrition enterprise, and this gap relates to the whole area of food selection for healthy living.

Consumers are asking, "What food should we be eating? How much should we be eating? What is the effect of the foods that we are eating on our health? How can we live longer and healthier lives?" Consumers are confused as new products are being developed. In addition, our agriculture producers are very concerned about producing the most healthful food commodities possible.

The proposed Iowa State University Human Nutrition Center for Food Selection and Nutritional Assurance will get at addressing these issues which we feel are not being addressed in the total full-systems approach at the present time.

The integrated full-systems approach includes: The producers; the processors; the consumers; the policymakers for sound food and nutrition policies. We are also a land grant university, where we bring together not only the research emphasis where we identify the basic body of knowledge, but we are also able to pursue the outreach educational programming through our Cooperative Extension program at Iowa State University.

The kind of fully integrated systematics approach which we are recommending and which we are proposing in our Human Nutrition Center has certainly been reinforced recently by the report which came from the National Research Council, "Designing Foods." This is a document which is really on target in terms of what we are proposing in our Human Nutrition Center at Iowa State University.

We have the components in place at this point. We have the National Center for Food and Industrial Agriculture Product Development; we have the Center for Agriculture and Rural Development; we have an extensive statistical laboratory with major additions now being made; and the final component which would really enable us to move out and be the forefront leader in the area of human nutrition research is the Human Nutrition Center focusing on food selection for nutritional assurance.

We are also interested in looking at not just the food selection and the research and the educational dimensions of food selection, but looking at the nonnutritive protective factors in food and how to increase these protective factors.

Certain foods have certain abilities to inhibit or prevent disease, and we need to be identifying specifically, the kinds of foods, how they change, how our food consumption patterns change over time and how, as we go through the life process in changing our style of life, the kinds of foods that we should be eating which will contribute to the healthy, long-term living for us.

I believe that Iowa State University has the capabilities. We have all the components in place, except such a human nutrition center, and we feel that such a center can provide this much-needed information related to the healthy food intake of consumers across the Nation.

I would like to close at this point, Senator Harkin, and have time for questions, and Dr. Dupont is here to help me in answering any questions.

Senator HARKIN. Thank you very much, Dr. Crabtree, for that fine statement.

To make it clear for the record, how will this center differ from other nutrition centers that are in existence now or for which plans have already been prepared?

Dr. CRABTREE. I will start by indicating that the center that we are proposing addresses the fully integrated systems approach, the linkage to the agriculture producers; the food processors, the consumers and the policymakers.

The other human nutrition centers are doing beautiful jobs in the areas in which they have identified as their emphasis. I would like to now turn to Dr. Dupont, because she and her colleagues have visited these various human nutrition centers throughout the country and I think she can provide you with more specific information.

Senator HARKIN. Please, Dr. Dupont.

Dr. DUPONT. Thank you. The centers that exist are studying nutrients and nutrient metabolism in various stages of the life cycle; infants, the elderly and the whole span in between.

Some centers are studying all nutrients, some centers are studying a few nutrients, they are mostly studying the metabolic interactions of nutrients and their sources. The area of food selection has been identified in the 1985 farm bill as being important for study by the USDA, but none of the centers are presently involved in putting together the study of how the nutrients are used in the body; with how they are selected; how people learn about what to choose; how they use them and, it is generally agreed, that that area of research in the United States is not being addressed very carefully.

Senator **Harkin**. So basically, in layman's terms, some of these other centers are focusing on infants?

Dr. **DuPont**. yes.

Senator **Harkin**. Nobody is really focusing on general nutritional aspects then?

Dr. **DuPont**. In the changes that take place in food selection through the life cycle, what children select and what adolescents select and what people going from middle age to senescence select changes over time.

We don't have very much information about how we make these selections, particularly because there is such a change in the food supply. We have new products being developed all the time, both new animal production products, new plant production products, and then food processing changes. So people are kind of confused about what to select. They are taking on new patterns that keep changing.

Senator **Harkin**. Correct me if I am wrong, but do I understand correctly that also, this center would have the kind of systems approach where you would go all the way back to the producers and see if there might be changes made in the way they feed animals or what kind of nutrients the animals would take that would change the type of food that the animal might produce?

Dr. **Crabtree**. Have healthier animals, healthier grades, and healthier food products.

Dr. **DuPont**. It would be a loop where our knowledge of what people need and what they want would be fed back to the producers who really want to provide what people want. Then the net result will be more effective development of new products, fewer failures in introduction of new products, and a greater healthy selection choice for people.

Senator **Harkin**. I just read an article in the paper not too long ago about a man in Pennsylvania who was raising chickens. Because of what he was feeding his chickens, the eggs had less cholesterol. They had the same nutritional value but less cholesterol.

Dr. **DuPont**. We would learn then whether the chicken came before the egg, because those eggs won't hatch.

Senator **Harkin**. Does the funding for the Iowa Nutrition Center represent a shared agreement? If so, please explain the arrangements to the committee.

Dr. **Crabtree**. Yes; this represents a shared agreement. At this point, Iowa State University has located $5.8 million for this, construction through facilities, and we also plan to have joint administration and joint faculty appointments, so it is truly a shared proposition, where we would truly use the expertise that we have at the university and can obtain, in addition, through additional funding.

Senator **Harkin**. Thank you very much, Dr. Crabtree.

Dr. **Crabtree**. Thank you for the opportunity.

Senator **Harkin**. I am going to turn it over to Senator Grassley.

Senator **Grassley**. So much of what the American people know about nutrition is industry-driven, it seems to me. All the television advertisement and all the things you read is what the food industry basically wants you to know about nutrition and food. Maybe an exception to that is that the commodity groups are getting into promoting beef and pork, et cetera. But my concern is with all the research you are proposing to do to benefit nutrition and the lives of Americans, that research is of little value if it isn't put to use.

Can you give us some idea of how industry views your approach to this and whether or not you see easy flow of information from your research laboratories and your tests out there into the practical world? Will we have a different approach than what we have had as far as people deciding what they are going to eat and why they eat it? As I see it, it is basically from television advertising or advertising generally.

Dr. **Dupont**. Yes; we work very closely with commodity groups nationally and in the State of Iowa, and the producers have been working toward providing the type of food that the consumer wants all the time, and we presently are working with the people who are using genetic engineering and biotechnology for producing growth hormones and other things, for changing the food supply, and these people in industry recognize that. We have had point-of-purchase programs of teaching people, and the grocery people are very interested in having this kind of input.

What we want to do and can do is determine whether or not new products that the producers want to provide because of consumer interest will really meet those consumer desires; whether or not the new meats will be edible, palatable, and people will like them, both in production and processing. The industry people want to make foods that consumers will accept. That is the first priority. But then they also want them to be viewed as healthy for the people. I think that we will have symposia and special meetings and use the electronic media and other ways to convey to producers and processors what we need.

Senator **Grassley**. Do you feel that industry is cooperating with the approach of this research center and all the ideas that you present?

Dr. **Dupont**. Yes; I believe so.

Senator **Grassley**. Do you feel like, in your position, you have good relationships with the food industry?

Dr. **Crabtree**. Yes.

Senator **Grassley**. I don't mean the producers as much as I mean the others.

Dr. **Dupont**. Yes, indeed; we have several research projects now funded by the food industry, Pitman Moore and Del Monte and other companies. Our students are sought by the food industry very aggressively to go into their programs. So we have a very high prestige with much of the food industry.

Senator **Harkin**. Thank you very much. I have one last question: What was the total projected cost of this facility?

Dr. **Crabtree**. We are looking at the cost of a facility of about $10.6 or $10.2 million.

Senator **Harkin**. Would Iowa State purchase the equipment and operate the facility?

Dr. **Dupont**. We would look to funding in the future for shared support for operation. The shared support is also for construction.

Senator **Harkin**. That is all I have. Thank you very much.

Dr. **Crabtree**. Thank you very much for the opportunity.

[The statement follows:]

## STATEMENT OF DR. BEVERLY CRABTREE

### SUMMARY OF REQUEST

**Iowa State University proposes, under authority granted pursuant to Title 14 of the 1977 Farm Act, the establishment of an additional regional Center for the Study of Human Nutrition within USDA. Iowa State University seeks an appropriation of $5.8 million in Federal matching funds for the establishment of a Human Nutrition Center for the Study of Food Selection for Nutritional Assurance.**

Mr. Chairman, I am pleased to have the opportunity today to testify before the Senate Agriculture Appropriations Subcommittee. I have with me a written statement which, with your approval, I will offer for the record. In the interest of time I will summarize the main points of my testimony.

My name is Beverly Crabtree and I am the Dean of the College of Consumer and Family Sciences at Iowa State University (ISU). I also serve as a member of the Joint Council on Food and Agricultural Sciences as a representative for the Home Economics profession. I am accompanied today by Dr. Jacqueline Dupont, Chair of the Department of Food and Nutrition at ISU.

Members of the ISU faculty have identified a significant gap in the current Federal nutrition research enterprise. The progress of nutrition research to address public concerns about appropriate food selection in the U.S. remains slow and diffuse. There must be a coordinated research effort aimed at providing information to each participant in the "human food chain."

The proposed Human Nutrition Center at ISU will provide greater knowledge of how and why individuals make food selection choices. In addition, the ISU Center will employ a unique full systems approach to the food production/consumption process by communicating sound recommendations on nutrition and food policy not only to consumers, but also to the producers of agricultural commodities, food processors, and policy makers.

Agricultural productivity in the U.S. provides an abundant variety of foods which, if consumed in appropriate portions, will support long and healthy life. Traditional habits no longer are the sole determinants of food selection and people are confused about how to make healthful and enjoyable food selections.

Therefore, one area of nutrition research should focus on food behavior. The nature of food intake; what people eat, how, when, where, and in what quantity, is heavily influenced by psychosocial, economic, and cultural variables. The role of these factors and their interactions need to be defined and understood in order to formulate sound and effective advice on food production, consumption and nutrition.

The Committee on Technological Options to Improve the Nutritional Attributes of Animal Products of the National Research Council has developed an up-to-date, realistic, and optimistic appraisal of the American diet. The report Designing Foods: Animal Product Options in the Marketplace declares,

> "there is a pressing need for more balanced coordination among all the appropriate disciplines in issues relating to food, nutrition and public health. Fragmentation of effort often leads to inefficiencies, waste, inertia, and duplication of effort and prevents development of the necessary tools for assessing and responding to structural changes in the food system.
>
> The issue emerging is the need to promote a total food systems approach to all aspects of animal and plant agriculture. Integration should include food production, processing and fabrication, storage, distribution and marketing, nutrient supply, health and safety factors, and the extent of consumer options."

There could not be a more timely linkage of defined need and proposed action than the establishment of the Human Nutrition Research Center for Food Selection for Nutritional Assurance. The new Center will conduct systems oriented research to complement and augment research being conducted in the U.S.

The existing USDA Human Nutrition Centers address the needs for information on nutritional requirements of infants, children, and the aged. New methods for the determination of nutritional status are also being developed in these centers. In addition, USDA research is producing knowledge of the nutrient composition of foods and of the metabolism of those nutrients.

The proposed ISU center will not duplicate these existing efforts. The Center will concentrate on three areas of research which are insufficiently met in the existing centers. These research areas are: 1) nutritional requirements of transitional age groups (adolescence, senescence), 2) determinants of food selection, and 3) non-nutrient, protective factors in foods.

We will study older adults to see if there are differences in their food selection and intake patterns when compared with younger adults. The Tufts HNC research program ia aimed at determining the nutritional requirements of the elderly. Our focus would complement the research underway at the Tufts HNC because we would be looking at how individual behavior in food selection can assure nutritional needs consistent with changes in the food supply.

NHANES and USDA food consumption surveys are helpful in identifying trends in aggregate U.S. food consumption. However, in order to fully understand individual consumption decisions, we must have physiological and behavioral data on why those choices are made. We cannot hope to formulate acceptable foods modified to reduce the risk of disease nor design effective nutrition education programs to change consumer intake without the type of individual data that the ISU center will generate.

The Center will also study NON-NUTRIENT protective factors in foods. There is a plethora of unidentified factors in foods which may act positively on the immune systems of humans.

FDA research efforts in non-nutrient factors are limited by budgetary restraints to the study of immediate microbial hazards (food poisoning), interaction of nutrients with drugs, and regulation of food additives. USDA monitors the aflatoxin (carcinogen) contamination of the food supply. Finally, NIH supported research focuses on identification of natural drugs for use in cancer chemotherapy--treating cancer once it is present, rather than prevention of cancer by increasing health-enhancing food consumption behavior.

The isolation of protective factors in foods may lead to new product development: development of new varieties of plants and animals containing increased amounts of health-protective factors; development of new food or animal products with decreased levels of toxic factors or components which counteract toxic factors. This area of research represents a vital extension of human nutrition research in the United States.

Iowa State University is in a unique position to facilitate the total systems approach to food production and consumption through the development of integrated research and education programs. Three of the four basic components identified by the NRC Committee as essential to the systems approach are already operational at ISU, and the new Human Nutrition Center represents the fourth component.

The National Center for Food and Industrial Agricultural Product Development, located at ISU, assures availability of foods which result from new products or processes. ISU's Center for Agricultural and Rural Development (CARD), nationally preeminent in the field of agricultural economics, provides the macroeconomic component essential to the total system approach. Finally the Snedecor Statistical Laboratory of ISU, top-ranked internationally by academicians, can provide the necessary information related to epidemiology (disease) and biometry. The Proposed **CENTER FOR HUMAN NUTRITION RESEARCH IN FOOD SELECTION FOR NUTRITIONAL ASSURANCE** would serve as the fourth and final component of the system by meeting the pressing need for balanced coordination and interchange among all the appropriate disciplines.

The proposed Center at Iowa State University is focused on the need to provide this integrated research. Understanding consumer behaviors in food selection is a neglected area of research which is vital to the total systems approach targeted by the NRC Committee.

In conclusion, the USDA and other Federal research centers are not conducting research of the type, and with the total systems approach, which is needed. The National Research Council has clearly delineated the need for this new approach. Iowa State University requests funding for a USDA National Center for the Study of Human Nutrition located in the Central Plains, as authorized in the 1977 Farm Act. Establishment of such a center at ISU will enable the coordination of food and nutrition

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## BIOGRAPHICAL SKETCH

Dr. Beverly Crabtree is Dean of the College of Family and Consumer Sciences at Iowa State University.

Before assuming this position in 1987, she was Dean of the College of Home Economics at Oklahoma State University (1975-1987). Prior to that she was Associate Dean of the College of Home Economics at the University of Missouri responsible for Home Economics Extension programming (1973-75), Chairman of the Home Economics Education Department at the University of Missouri-Columbia (1967-73), and on the Home Economics Education faculty at Michigan State University (1964-67). She began her professional career as a high school home economics teacher in southwest Missouri.

Dr. Crabtree completed her Ph.D. degree at Iowa State University in 1965 with a major in Home Economics Education with minors in Sociology and Statistics. Her Bachelor's and Master's degrees were both completed at the University of Missouri-Columbia in 1959 and 1962 respectively with a major in Home Economics Education.

She belongs to numerous professional, honorary, and local civic organizations and is past president of the American Home Economics Association, having served in that office for one year during 1977-78. During 1987-88 she is serving as President of the American Home Economics Association Foundation. Throughout her career she has assumed and continues to assume a variety of leadership responsibilities in professional organizations. She has received several honors and awards, some of these being the Iowa State University College of Home Economics Centennial Alumni Award in 1971, the University of Missouri College of Home Economics Alumni Citation of Merit in 1976, the University of Missouri Faculty and Alumni Award in 1977, the Iowa State University Professional Achievement Award of the College of Home Economics in 1983, and the Oklahoma Home Economics Association Professional Award in 1983. She is listed in *Who's Who of America* and *Who's Who of American Women.*

She served as Chairman of the Oklahoma Governor's Advisory Committee on Children, Youth and Families from 1980 through 1983, and from 1976 until 1982 she was a member of the Family Impact Seminar associated with the George Washington University.

Dr. Crabtree served as a member of the USDA/NASULGC Joint Committee on the Future of Cooperative Extension during 1982-83 and as a member of the NASULGC, Agriculture Division Title XIV Legislative Task Force for the 1985 Farm Bill. In 1986, she was an invited participant on a W. K. Kellogg Foundation Ad Hoc Advisory Committee on Rural America. In 1987 she was appointed by the Secretary of the U.S. Department of Agriculture to serve a two-year term as the Home Economics representative on the USDA Joint Council on Food and Agricultural Sciences.

Dr. Crabtree and her husband, Dr. Jewell Crabtree, have two children, Greg and Karen. Her husband is a soil scientist and member of the Agronomy faculty at Oklahoma State University.

## CONGRESSIONAL WITNESS

### STATEMENT OF HON. ORRIN G. HATCH, U.S. SENATOR FROM UTAH

Senator **HARKIN**. Next we have our distinguished colleague from the State of Utah, Senator Hatch. Welcome to the Subcommittee on Agriculture.

Senator **HATCH**. Thank you.

Senator **HARKIN**. I understand there is a vote at 10 after.

Senator **HATCH**. I think there will be a vote in 5 or 6 minutes.

Senator **HARKIN**. Welcome, Orrin. I am delighted to see you and I understand that you will be talking about FDA.

Senator **HATCH**. I appreciate having this time, because I need to get back to the vote.

Senator **HARKIN**. Please proceed.

Senator **HATCH**. Mr. Chairman, 50 years ago, our predecessors in Congress passed the Federal Food, Drug and Cosmetic Act of 1938. That was a milestone in the development of sound processes for the regulation of the modern food and drug marketplace. I come before you today to commend the Food and Drug Administration for the tremendous work it has performed in implementing the 1938 act.

I also come before this committee to propose that we mark the 50th anniversary of this law by rededicating ourselves to revitalization of this remarkable agency. We can accomplish this by appropriating the resources FDA needs to continue the important strides that it has made in consumer protection and advancing the technological development of new foods, drugs, devices, and cosmetics.

The Food Drug and Cosmetic Act of 1938 continues to serve as the basic law by which the FDA works to protect the American public. The FDA is the premier scientific agency in our country directing the effort to protect the American public, and over the course of the last 50 years, I believe the FDA has done an extraordinary job in performing this Herculean task.

It is astounding to me to discover that today, FDA has responsibility for regulating more than 700 billion dollars' worth of goods sold annually to Americans, constituting about 25 percent of the personal consumption expenditures in the United States. In addition to this responsibility, FDA recently has had to cope with other important and highly resource and intensive new issues.

Because of the need to balance safety and cost issues, I authored the Drug Price Competition and Patent Term Restoration Act which opened the doors to generic copies of off-patent medications. I consider it an honor that the law is now called the Hatch-Waxman Act.

This law brought together long sought and long elusive public policy goals. Both sides of the pharmaceutical industry came together to solve vexing problems in drug development and to form a union with the American people.

They worked toward the twin objectives of less expensive drugs today and the promise of better drugs tomorrow. The consumers of America won on two counts. The law reduced prices of off-patent drugs through generic competition, while providing increased incentives for the research-based company to undertake risky, expensive and time-consuming processes of new drug development.

But this has created increased work and increased workloads for the FDA, as they must review the ANDA's or the NDA's in a timely fashion.

Another change made in the 99th Congress was the Pharmaceutical Export Amendment which allows the United States to export drugs awaiting approval from the Food and Drug Administration to certain countries that already approve them.

To be exported, it must be shown that, among other things, the drug meets the specifications of the foreign purchaser. In other words, sale of the drug must not conflict with the law of the importing country. The drug must be labeled on the outside of the shipping package that it is intended for export; that it has not been sold or offered for sale in the United States; and that the sponsor of the drug is actively pursuing approval of the pharmaceutical in the United States. This new law has required FDA to add additional staff.

FDA must also accomplish these new vast and increasingly complex tasks with very limited resources: 7,000 full-time employees nationwide at an annual budget of $478 million. If one compares the Agency's fiscal year 1988 budget to the overall value of the products it regulates, one can determine that the average American pays approximately $2 annually to have the Agency assure the soundness of approximately 3,000 dollars' worth of consumer goods. That would be a bargain by anyone's estimate.

Moreover, many of these areas involve products unknown in 1938 and found on the cutting edge of today's technology. It takes a revitalized FDA to meet this challenge. It is important to realize that AIDS is only one aspect of the growing challenge FDA is expected to meet. In this bill we have on the floor, we hope it can pass, which might help them to a degree.

In order to assess a new generation of biotech drugs and computer-driven medical devices, FDA's scientific base needs to be continually revitalized. We need to ensure it has adequate resources as well as streamlined administrative procedures to assure a timely review of pending applications.

One key to this revitalization is the retention of FDA's scientists and increased efforts to recruit more topnotch experts into their ranks. FDA has been blessed with some of the world's most preeminent scientists. Their expertise has given the Agency the ability to keep abreast of the technological advances. Unfortunately, many of these gifted scientists have to work under conditions that are often far less rewarding than their private sector counterparts. No doubt, FDA scientists derive a great deal of satisfaction from their public service, but it is unrealistic to expect that FDA will continue to attract such talented individuals indefinitely without vigorous efforts to improve their status and make it more comparable to the job opportunities that are commonly found outside of the Agency.

A number of initiatives could be taken to help remedy this situation, so I am going to file a bill today that will literally take care of a lot of these. Chief among these would be the establishment of a Senior Biomedical Corps designed to enhance the prestige and desirability of scientific service within the Agency. Among its other features, the Senior Corps would provide a mechanism for adding needed salary flexibility beyond the present government general service schedules by awarding eligible scientists 110 percent of their present pay levels as an inducement for recruitment or continued government service.

I believe that the centerpiece for the revitalization of this Agency also has a key for better utilization of personnel and equipment, improved working conditions, and greater organization efficiency. The accomplishment of the revitalization rests on the construction of a building dedicated to mission of the FDA.

Currently, the FDA has staff at about 1.3 million square feet of space rented through the GSA in the Washington metropolitan area. Most of this is located in buildings that were not designed for the uses the FDA makes of them. The Agency has been forced to conduct many of its most vital functions in inadequate facilities scattered all over the Washington area. This results in inefficiencies in the use of personnel and equipment. The physical dispersal and dissolution of FDA has serious implications because it inevitably results in logistical problems that can delay the timely and effective handling of many time sensitive or emergency matters.

They should have a building that provides them state-of-the-art equipment to carry out their scientific mission, not only for America, but all the world. The savings in having personnel in one place in the Washington area would clearly save money in the management of the FDA and repay in the positive growth of organizational spirit.

The Senate has committed itself over the years to the support of the FDA. It is now time to reward the commitment of the FDA staff and their commitment to protecting our American way of life. By allowing the Agency to expand its facilities to a degree commensurate with its broad responsibilities, we can take a significant step toward recognizing its overall capabilities.

It is important to remember that the revitalization of FDA is, in large part, a revitalization of the industries which it regulates and of the entire American economy. Our society's access to advanced new pharmaceutical food and medical device products that could dramatically improve the health and well-being of the American people will be hindered unless we give FDA the support it needs to evaluate them in a fair and timely manner.

Public confidence in the marketplace can only be maintained if the Agency is given sufficient resources to react swiftly and efficiently to tampering, recall, and other emergency situations. In short, FDA is an integral part of our society and economy, and as such, our commitment to it may determine much of our national destiny. So I want to thank the committee for giving me the opportunity to commend FDA for the job it has performed during the past 50 years.

With your help, I believe that this essential Agency will continue to be revitalized and act to promote this Nation's safety, health, and prosperity.

As I said, I will be introducing legislation, either today or within the near future, which will accomplish the goals that I have listed here today. I would like to work with the members of this committee as well as the members of the Labor and Human Resources Committee to see that it is enacted.

If I could raise just one final issue, Mr. Chairman, and I think it is a matter that is of great concern to me. Over the past few days, at least two companies in my home State of Utah and a number of other multinational product companies who have received regulatory letters from the FDA have come to me, and the FDA's regulatory letters have threatened to initiate seizure actions against nutritional supplements containing fish oil. FDA has not based its concerns with the safety of fish oil. Rather, they based their action on the position that the nutritional oil products should be classified as drugs because their labeling and advertising discuss the health benefits associated with increased consumption of fish and fish oil.

Once classified as drugs, the products would have to be removed from the market until a new drug application has been approved by FDA, a process which takes several years and costs millions of dollars.

I have grave concerns with this action taken by the FDA. One of them is that they seem to be disagreeing with their own proposed regulations governing health messages for foods. That proposal properly recognizes that consumers need and have a right to information about the potential health benefits of the foods they eat.

Rather than proceeding against individual companies, I believe FDA should review this issue on an industrywide basis, applying the criteria contained in the Agency's own proposed regulation on a nondiscriminatory basis.

While I am committed to work with FDA to correct this, if FDA does not act evenhandedly, I may offer a rider to a bill that would prohibit FDA from expending any appropriated funds for enforcement action against fish oil supplements based on the labeling of advertising of those products until FDA has finalized its health message regulations.

I think that has to be done, and I don't want to have the vitamin companies picked on in this country in any way, shape, or form. It was attempted before, and a number of us rose up and said, "We are not going to put up with that." I don't want to put up with it with regard to these particular products, either. I think they can look at it genuinely; they can look at it scientifically, but then they should not be putting companies out of business in the process.

Thank you, Mr. Chairman. I hope that was short enough.

Senator HARKIN. Thank you Senator Hatch, for a very enlightening statement, at least for me personally. I must admit I'm not as knowledgeable as I should be about the FDA, and some of the facts and figures you pointed out are, indeed, very interesting.

Last week we had the Commissioner here, Commissioner Young. He told us basically that the FDA staff resources had increased faster than the facilities could be equipped to house them. We have asked the GAO to look into this and give us a report on it. I know you also stated in your remarks that additional facilities might have to be constructed.

Senator HATCH. It is a crime that the greatest food and drug regulatory agency in the world has to put up with non-state-of-the-art facilities, really inadequate facilities.

We want to maintain our leadership in the rest of this world, and it is one thing for these great scientists to come here and work for a third of what they would make in the private sector. But they do it because they believe in the FDA and they have pride in working for the FDA, and they realize they can have an effect on public policy and for many other good and valid reasons. But to put them in facilities that are clearly below standards, which we have, you can't go down to the FDA without realizing that those facilities are not what they should be from a scientific standpoint. Yet, we make unusual and really unremitting demands upon FDA to be at the top of the heap when it comes to the regulatory management of the food and drug process.

Frankly, we have just got to build them, it seems to me, a state-of-the-art facility—that is in the best interests of the health of every American, and not only us; what they decide is followed by all the rest of the world. I think we have got to take that into consideration. I hope this committee will help to get that done, and I believe you will.

Senator HARKIN. I hope so, too. I focus on NIH and other topics in our other committee, and I haven't really focused on this.

Are you also going to address in your bill the idea of Senior Corps?

Senator HATCH. I would pay these great scientists more if I could, and I would give greater inducements to get scientists from the outside to come in and work at the FDA. Even under my bill, it would be a modest 110 of present levels. So it wouldn't be exorbitant, but we will get great scientists if we provide the great facilities to do research in. That is what they want more than anything else. We will reap the benefits from it. We can have a faster, more efficient, and more accurate regulatory process, which would benefit every American and people all over the world. We could also have a heightened environment to invite some of the best people in the world to participate in.

Senator HARKIN. Thank you very much, Senator Hatch. We better go vote.

Senator HATCH. I would like to make one other comment, and I think we have time to get there. I would like to bring to the subcommittee's attention the Coalition for FDA Resources. This group, recently organized by Doug Campbell, a former counsel on my Labor and Human Resources Committee staff, already includes industry, consumer, and voluntary health organizations.

It marks the first time such diverse members have assembled, buried their differences and committed to work for a single goal of great benefit to all Americans; sufficient funding, physical facilities, and staffing to make sure that FDA becomes and remains as strong, effective, and efficient as possible.

As you can tell from my testimony, I wholeheartedly support these same objectives, and I congratulate the coalition for its formation. I understand that this coalition would like to submit for the record a statement on the FDA's fiscal year 1989 appropriations request, so I would ask for the subcommittee to grant permission for that statement to be filed next week, if you will.

Senator HARKIN. Without objection, it will be included.

Senator HATCH. Thank you so much, and thank you for the courteous treatment.

[The statements follow:]

## Statement of Senator Hatch

MR. CHAIRMAN, FIFTY YEARS AGO, OUR PREDECESSORS IN THE CONGRESS PASSED THE FEDERAL FOOD AND COSMETIC ACT OF 1938 -- A MILESTONE IN THE DEVELOPMENT OF SOUND PROCESSES FOR THE REGULATION OF THE MODERN FOOD AND DRUG MARKETPLACE. I COME BEFORE YOU TODAY TO COMMEND THE FOOD AND DRUG ADMINISTRATION FOR THE TREMENDOUS WORK IT HAS PERFORMED IN IMPLEMENTING THE 1938 ACT. I ALSO COME BEFORE THIS COMMITTEE TO PROPOSE THAT WE MARK THE 50TH ANNIVERSARY OF THIS LAW BY REDEDICATING OURSELVES TO REVITALIZATION OF THIS REMARKABLE AGENCY. WE CAN ACCOMPLISH THIS BY APPROPRIATING THE RESOURCES FDA NEEDS TO CONTINUE THE IMPORTANT STRIDES IT HAS MADE IN CONSUMER PROTECTION AND ADVANCING THE TECHNOLOGICAL DEVELOPMENT OF NEW FOODS, DRUGS, DEVICES, AND COSMETICS.

IT MUST BE REMEMBERED THAT THE 1938 ACT WAS SPURRED BY A HORRIBLE TRAGEDY THAT HAD BEFALLEN THE NATION A YEAR BEFORE, WHEN 107 PEOPLE WERE KILLED BY A MISFORMULATED PRODUCT CALLED ELIXIR OF SULFANILAMIDE. THE LAW ESTABLISHED A MANDATE FOR THE FOOD AND DRUG ADMINISTRATION TO ASSURE THE SAFETY OF FOOD AND DRUG PRODUCTS PLACED ON THE MARKET.

THE FOOD, DRUG AND COSMETIC ACT OF 1938 CONTINUES TO SERVE AS THE BASIC LAW BY WHICH THE FDA WORKS TO PROTECT THE AMERICAN PUBLIC. THE FDA IS THE PREMIER SCIENTIFIC AGENCY IN OUR COUNTRY DIRECTING THIS EFFORT TO PROTECT THE AMERICAN PUBLIC! AND OVER THE COURSE OF THE LAST FIFTY YEARS THE FDA HAS DONE AN EXTRAORDINARY JOB IN PERFORMING THIS HERCULEAN TASK.

TODAY, HOWEVER, FDA RESPONSIBILITIES EXTEND FAR BEYOND THE PURVIEW OF ENSURING THE SAFETY OF FOODS AND DRUGS. THE KEFAUVER AMENDMENTS OF 1962, FOR EXAMPLE, GAVE FDA THE RESPONSIBILITY FOR DETERMINING THE EFFICACY AS WELL AS THE SAFETY OF DRUGS PROPOSED FOR MARKETING. OTHER MAJOR AMENDMENTS GAVE THE AGENCY RESPONSIBILITY FOR THE NATION'S BLOOD SUPPLY, MEDICAL DEVICES AND PRODUCTS INVOLVING THE USE OF RADIATION.

IT IS ASTOUNDING TO DISCOVER THAT TODAY FDA HAS RESPONSIBILITY FOR REGULATING MORE THAN $700 BILLION WORTH OF GOODS SOLD ANNUALLY TO AMERICANS--CONSTITUTING ABOUT 25 PERCENT OF THE PERSONAL CONSUMPTION EXPENDITURES IN THE UNITED STATES.

IN ADDITION TO THIS RESPONSIBILITY, FDA RECENTLY HAS HAD TO COPE WITH OTHER IMPORTANT AND HIGHLY RESOURCE INTENSIVE NEW ISSUES.

BECAUSE OF THE NEED TO BALANCE SAFETY AND COST ISSUES, I AUTHORED THE DRUG PRICE COMPETITION AND PATENT TERM RESTORATION ACT WHICH OPENED THE DOORS FOR GENERIC COPIES OF OFF-PATENT MEDICATIONS. I CONSIDER IT AN HONOR THAT THIS LAW IS NOW CALLED "HATCH-WAXMAN" ACT.

THIS LAW BROUGHT TOGETHER LONG SOUGHT-- AND LONG ELUSIVE PUBLIC POLICY GOALS. BOTH SIDES OF THE PHARMACEUTICAL INDUSTRY CAME TOGETHER TO SOLVE VEXING PROBLEMS IN DRUG DEVELOPMENT, AND FORM A UNION WITH THE AMERICAN PEOPLE. THEY WORKED TOWARDS THE TWIN OBJECTIVES OF LESS EXPENSIVE DRUGS TODAY, AND THE PROMISE OF BETTER DRUGS TOMORROW

THE NEW LAW ALLOWS GENERIC DRUGS MAKERS TO FILE AN ABBREVIATED NEW DRUG APPLICATION (A.N.D.A.). FDA APPROVES THE GENERIC COPY OF THE "PIONEERED" DRUG WHEN THE GENERIC MANUFACTURER PROVES HIS PRODUCT IS BIOEQUIVALENT TO THE ORIGINAL DRUG.

THE CONSUMER OF AMERICA WON ON TWO COUNTS-- THE LAW REDUCED PRICES OF OFFPATENT DRUGS THROUGH GENERIC COMPETITION, WHILE PROVIDING INCREASED INCENTIVES FOR THE RESEARCH-BASED COMPANIES TO UNDERTAKE THE RISKY, EXPENSIVE, AND TIME-CONSUMING PROCESS OF NEW DRUG DEVELOPMENT.

BUT THIS HAS CREATED INCREASE WORK FOR THE FDA AS THEY MUST REVIEW THE A.N.D.A.'S IN A TIMELY FASHION.

ANOTHER CHANGE MADE IN THE 99TH CONGRESS WAS THE PHARMACEUTICAL EXPORT AMENDMENTS WHICH ALLOWS THE UNITED STATES TO EXPORT DRUGS AWAITING APPROVAL FROM THE FOOD AND DRUG ADMINISTRATION TO CERTAIN COUNTRIES THAT ALREADY APPROVE THEM.

PRIOR TO THIS LAW, DRUGS NOT APPROVED BY FDA FOR USE IN THE UNITED STATES COULD NOT BE EXPORTED. THIS POLICY WAS SIMPLY THE RESULT OF AN OVERSIGHT IN THE DRAFTING OF THE 1938 ACT. WHILE ON ITS FACE THE POLICY MAY SEEM PRAISEWORTHY, ANY SUCH VALUE IS IN FACT ILLUSORY AND POINTLESS. TO CIRCUMVENT THIS LAW ALL A MANUFACTURER NEEDED TO DO WAS TO LOCATE ITS PRODUCTION FACILITIES OVERSEAS, BECAUSE NO OTHER COUNTRY HAS A BAN ON UNAPPROVED EXPORTS, THE MANUFACTURERS COULD SHIP FROM HIS NON-U.S. PLANT ANY DRUG HE DESIRED TO ANY COUNTRY THAT PERMITTED ITS IMPORT.

FOREIGN MARKETING APPROVAL OFTEN IS OBTAINED EARLIER THAN FDA APPROVAL, AND A UNITED STATES MANUFACTURER WAS FACED WITH THE BITTER CHOICE OF EITHER MOVING HIS PRODUCTION PLANT OVERSEAS, OR SIMPLY NOT SERVING THE FOREIGN MARKET, CONCEDING THAT MARKET TO FOREIGN COMPETITORS UNTIL FDA APPROVAL WAS RECEIVED. NATURALLY, AS YOU KNOW, IT HAS SENT TO FOREIGN SHORES AMERICAN JOBS AND CAPITAL INVESTMENT WHICH SHOULD REMAIN HERE. THEN, WHEN THE DRUG WAS APPROVED IN THE U.S., THE MANUFACTURER SERVED THE U.S. MARKET BY IMPORTING THE DRUG FROM THE FOREIGN PLANT, WORSENING OUR BALANCE OF PAYMENTS DEFICIT.

UNDER OUR MISGUIDED POLICY, THEN, WE NEEDLESSLY HURT THE AMERICAN ECONOMY WHILE GIVING FOREIGN CONSUMERS NO PROTECTION FROM EXPOSURE TO UNAPPROVED DRUGS. THE NEW DRUG EXPORT LAW WILL KEEP THE JOBS AND INVESTMENT AT HOME AND ALLOW -- UNDER -- RESTRICTIONS-- THE EXPORT OF SOME PHARMACEUTICALS NOT YET APPROVED BY THE FDA.

TO BE EXPORTED, IT MUST BE SHOWN THAT, AMONG OTHER THINGS, THE DRUG MEETS THE SPECIFICATIONS OF THE FOREIGN PURCHASER. IN OTHER WORDS, SALE OF THE DRUG MUST NOT CONFLICT WITH THE LAW OF THE IMPORTING COUNTRY. THE DRUG MUST BE LABELED ON THE OUTSIDE OF THE SHIPPING PACKAGE THAT IT IS INTENDED FOR EXPORT, THAT IT HAS NOT BEEN SOLD OR OFFERED FOR SALE IN THE UNITED STATES, AND, THAT THE SPONSOR OF THE DRUG IS ACTIVELY PURSING APPROVAL OF THE PHARMACEUTICAL IN THE UNITED STATES. THIS NEW LAW HAS REQUIRED FDA TO ADD ADDITIONAL STAFF.

FDA MUST ACCOMPLISH THESE NEW VAST AND INCREASINGLY COMPLEX TASKS WITH VERY LIMITED RESOURCES -- 7,000 FULL TIME EMPLOYEES NATIONWIDE AND AN ANNUAL BUDGET OF $478 MILLION. IF ONE COMPARES THE AGENCY'S FY 1988 BUDGET TO THE OVERALL VALUE OF THE PRODUCTS IT REGULATES, ONE CAN DETERMINED THAT THE AVERAGE AMERICAN PAYS APPROXIMATELY $2.00 ANNUALLY TO HAVE THE AGENCY ASSURE THE SOUNDNESS OF APPROXIMATELY $3,000 WORTH OF CONSUMER GOODS -- A BARGAIN BY ANYONE'S ESTIMATE.

MOREOVER, MANY OF THESE AREAS INVOLVE PRODUCTS UNKNOWN IN 1938, AND FOUND ON THE CUTTING EDGE OF TODAY'S TECHNOLOGY. IT TAKES A REVITALIZED FDA TO MEET THIS CHALLENGE.

FOR EXAMPLE, IN RECENT YEARS FDA HAS REVIEWED AND APPROVED INCREASING NUMBERS OF PRODUCTS DEVELOPED THROUGH BIOTECHNOLOGY -- A REVOLUTIONARY NEW TYPE OF BIOSCIENCE GENERATING ENTIRELY NEW TYPES OF PHARMACEUTICALS AND DEVICES. SIMILARLY, THE AGENCY IS ALSO CURRENTLY EVALUATING TWO NEW FOOD PRODUCTS FORMUALTED THROUGH RADICALLY NEW TECHNOLOGICAL PROCESSES.

IN THE IMMEDIATE FUTURE, FDA WILL NEED ADDITIONAL RESOURCES IN ORDER TO MEET ITS BASIC MISSION, AND TO RESPOND TO THE NEW CHALLENGES THAT CONFRONT IT.

ON ONE SUCH CHALLENGE, AIDS, THE AGENCY HAS BEEN ONE OF THE LEADING AGENTS ON RESPONDING TO THE CRISIS. THE AGENCY, PARTICULARY UNDER THE LEADERSHIP OF ITS PRESENT COMMISSIONER, FRANK E. YOUNG, HAS ESTABLISHED INNOVATIVE MEASURES TO HELP EXPEDITE THE DEVELOPMENT, TESTING, REVIEW AND APPROVAL OF PROMISING DRUGS, VACCINE AND DIAGNOSTICS FOR THIS DISEASE. THANKS TO THESE EFFORTS SEVERAL CRITICALLY IMPORTANT AIDS-RELATED PRODUCTS HAVE BEEN DEVELOPED AND APPROVED IN RECORD BREAKING TIME.

THE FIRST AIDS SCREENING KITS THAT HAVE SERVED AS THE PRIMARY SAFEGUARD AGAINST THE TRANSMISSION OF THE AIDS VIRUS THROUGH THE NATION'S BLOOD SUPPLY WERE APPROVED BY THE AGENCY WITHIN THREE MONTHS. THE WORLD'S FIRST EFFECTIVE PALLIATIVE FOR AIDS PATIENTS AZT WAS APPROVED BY THE AGENCY IN LESS THAN FOUR

MONTHS. IN BOTH CASES, DEDICATED TEAMS OF FDA SCIENTISTS AND MEDICAL EXPERTS WORKED AROUND THE CLOCK TO THROUGHLY REVIEW THESE VITAL PRODUCTS IN THE SHORTEST POSSIBLE TIME.

THESE ACCOMPLISHMENTS DO NOT COME CHEAP. IN ORDER TO APPROVE THE FIRST TREATMENT FOR AIDS IN RECORD TIME FDA'S SCIENTIST AND MEDICAL REVIEWERS HAD TO EXPEND 8 MAN YEARS OF EFFORT--AT A COST OF $600,000. SINCE THESE EFFORTS FOR AIDS DRUGS MUST BE OFTEN EXPENDED AT THE SAME TIME THE AGENCY IS EXPECTED TO REVIEW OTHER NON-AIDS RELATED DRUGS, FDA HAS BEEN FORCED INTO INCREASED SPECIALIZATION. A HIGHLY SPECIALIZED DIVISION OF ANTI-VIRAL DRUGS HAS BEEN ESTABLISHED WITHIN FDA'S CENTER FOR DRUGS EVALUATION AND RESEARCH IN ORDER TO COPE WITH THE TORRENT OF EXPERIMENTAL ANTI-AIDS DRUGS NOW IN DEVELOPMENT. THE AGENCY HAS ALSO DETERMINED THAT IT WILL NEED TO CREATE ANOTHER DIVISION SPECIALIZING IN CYTOKINE BIOLOGY WITHIN ITS CENTER FOR BIOLOGICS, EVALUATION AND RESEARCH IN ORDER TO DEAL WITH ANTI-AIDS BIOLOGIC AGENTS NOW UNDER DEVELOPMENT.

IT IS IMPORTANT TO REALIZE THAT AIDS IS ONLY ONE ASPECT OF THE GROWING CHALLENGE FDA IS EXPECTED TO MEET. IN ORDER TO ASSESS A NEW GENERATION OF BIOTECH DRUGS AND COMPUTER-DRIVEN MEDICAL DEVICES, FDA'S SCIENTIFIC BASE NEEDS TO BE CONTINUALLY REVITALIZED. AND, WE NEED TO ENSURE IT HAS ADEQUATE RESOURCES AS WELL AS STREAMLINED ADMINISTRATIVE PROCEDURES TO ASSURE A TIMELY REVIEW OF PENDING APPLICATIONS.

ONE KEY TO THIS REVITALIZATION IS THE RETENTION OF FDA'S SCIENTISTS AND INCREASED EFFORTS TO RECRUIT MORE TOP-NOTCH EXPERTS INTO THEIR RANKS. FDA HAS BEEN BLESSED WITH SOME OF THE WORLD'S MOST PREEMINENT SCIENTISTS. THEIR EXPERTISE HAS GIVEN THE AGENCY THE ABILITY TO KEEP ABREAST OF TECHNOLOGICAL ADVANCES. UNFORTUNATELY MANY OF THESE GIFTED SCIENTISTS HAVE TO WORK UNDER CONDITIONS THAT ARE OFTEN FAR LESS REWARDING THAN THEIR PRIVATE SECTOR COUNTERPARTS. NO DOUBT FDA SCIENTISTS DERIVE A GREAT DEAL OF SATISFACTION FROM THEIR PUBLIC SERVICE, BUT IT IS UNREALISTIC TO EXPECT THAT FDA WILL CONTINUE TO ATTRACT SUCH TALENTED

INDIVIDUALS INDEFINITELY WITHOUT VIGOROUS EFFORTS TO IMPROVE THEIR STATUS AND MAKE IT MORE COMPARABLE TO THE JOB OPPORTUNITIES THAT ARE COMMONLY FOUND OUTSIDE THE AGENCY.

A NUMBER OF INITIATIVES COULD BE TAKEN TO HELP REMEDY THE SITUATION. CHIEF AMONG THESE WOULD BE THE ESTABLISHMENT OF A SENIOR BIOMEDICAL CORPS DESIGNED TO ENHANCE THE PRESTIGE AND DESIRABILITY OF SCIENTIFIC SERVICE WITHIN THE AGENCY. AMONG ITS OTHER FEATURES, THE SENIOR CORPS WOULD PROVIDE A MECHANISM FOR ADDING NEEDED SALARY FLEXIBILITY BEYOND THE PRESENT GOVERNMENT GENERAL SERVICE SCHEDULES BY AWARDING ELIGIBLE SCIENTISTS 110% OF THEIR PRESENT PAY LEVELS AS AN INDUCEMENT FOR RECRUITMENT OR CONTINUED GOVERNMENT SERVICE.

I BELIEVE THAT THE CENTER PIECE FOR THE REVITALIZATION OF THIS AGENCY IS ALSO A KEY TO BETTER UTILIZATION OF PERSONNEL AND EQUIPMENT, IMPROVED WORKING CONDITIONS, AND GREATER ORGANIZATION EFFICIENCY. THE ACCOMPLISHMENTS OF THIS REVITALIZATION REST OF THE CONSTRUCTION OF A BUILDING DEDICATED TC THE MISSION OF THE FDA.

CURRENTLY THE FDA HAS STAFF IN ABOUT 1.3. MILLION SQUARE FEET OF SPACE RENTED THROUGH THE GSA IN THE WASHINGTON METROPOLITAN AREA. MOST OF THIS IS LOCATED IN BUILDINGS THAT WERE NOT DESIGNED FOR THE USES THAT THE FDA MAKES OF THEM. THE AGENCY HAS BEEN FORCED TO CONDUCT MANY OF ITS MOST VITAL FUNCTIONS IN INADEQUATE FACILITIES SCATTERED AROUND THE WASHINGTON AREA. THIS RESULTS IN INEFFICINECIES IN THE USE OF PERSONNEL AND EQUIPMENT. THE PHYSICAL DISPERSAL, OF FDA HAS SERIOUS IMPLICATIONS BECAUSE IT INEVITABLY RESULTS IN LOGISTICAL PROBLEMS THAT CAN DELAY THE TIMELY AND EFFECTIVE HANDLING OF MANY TIME SENSITIVE OR EMERGENCY MATTERS. THEY SHOULD HAVE A BUILDING THAT PROVIDES THEM STATE-OF-THE-ART EQUIPMENT TO CARRY OUT THEIR SCIENTIFIC MISSION FOR AMERICA. THE SAVINGS IN HAVING PERSONNEL IN ONE PLACE IN THE WASHINGTON AREA WOULD CLEARLY SAVE MONEY IN THE MANAGEMENT OF THE FDA AND REPAY IN THE POSITIVE GROWTH OF ORGANIZATIONAL SPIRIT. THE SENATE HAS COMMITTED ITSELF OVER THE

YEARS TO THE SUPPORT OF THE FDA, IT IS NOW TIME TO REWARD THE COMMITMENT OF THE FDA STAFF AND THEIR COMMITMENT TO PROTECTING THE AMERICAN PEOPLE.

BY ALLOWING THE AGENCY TO EXPAND ITS FACILITIES TO A DEGREE COMMENSURATE WITH ITS BROADENED RESPONSIBILITIES, WE CAN TAKE A SIGNIFICANT STEP TOWARD REVITALIZING ITS OVERALL CAPABILITIES.

IT IS IMPORTANT TO REMEMBER THAT THE REVITALIZATION OF FDA IS IN LARGE PART A REVITALIZATION OF THE INDUSTRIES WHICH IT REGULATES AND OF THE ENTIRE AMERICAN ECONOMY. OUR SOCIETY'S ACCESS TO ADVANCED NEW PHARMACEUTICAL, FOOD, AND MEDICAL DEVICE PRODUCTS THAT COULD DRAMATICALLY IMPROVE THE HEALTH AND WELL-BEING OF THE AMERICAN PEOPLE WILL BE HINDERED UNLESS WE GIVE FDA THE SUPPORT IT NEEDS TO EVALUATE THEM IN A THOROUGH AND TIMELY MANNER. PUBLIC CONFIDENCE IN THE MARKETPLACE CAN ONLY BE MAINTAINED IF THE AGENCY IS GIVEN SUFFICIENT RESOURCES TO REACT SWIFTLY AND EFFECTIVELY TO TAMPERING, RECALL, AND OTHER EMERGENCY SITUATIONS. IN SHORT, FDA IS AN INTEGRAL PART OF OUR SOCIETY AND ECONOMY, AND AS SUCH, OUR COMMITMENT TO IT MAY DETERMINE MUCH OF OUR NATIONAL DESTINY.

I WISH TO THANK THE COMMITTEE FOR GIVING ME THE OPPORTUNITY TO COMMEND FDA FOR THE JOB IT HAS PERFORMED OVER THE PAST FIFTY YEARS. WITH YOUR HELP, I BELIEVE THAT THIS ESSENTIAL AGENCY WILL CONTINUE TO BE REVITALIZED, AND ACT TO PROMOTE THIS NATION'S SAFETY, HEALTH, AND PROSPERITY.

## STATEMENT OF THE COALITION FOR F.D.A. RESOURCES

Mr. Chairman, the Coalition for F.D.A. Resources is pleased to present its views on the FY 1989 appropriation for the Food and Drug Administration.

The Coalition is a newly formed group of trade, consumer and voluntary health associations interested in the operations of the Food and Drug Administration. These organizations may have differing, even opposing, positions on specific issues of F.D.A. resource allocation and policy. Yet, in recognition of the importance of F.D.A. for all, they are united in their support for healthy funding levels, state of the art physical facilities, and adequate personnel authority for the agency.

It is the Coalition's intent to be as inclusive as possible: its initial membership is broadly representative, and as more groups lend their support, we feel confident that it will truly be able to speak for the interests of all Americans on general F.D.A. issues. Current Coalition members endorsing this statement are: the American Association of Retired Persons, the American Heart Association, the Animal Health Institute, the Generic Pharmaceutical Industry Association, the Industrial Biotechnology Association, the National Food Processors Association, the National Organization for Rare Disorders, and the National Soft Drink Association.

Central to the mission of the Coalition is the conviction that the F.D.A. is not simply another regulatory agency. Commissioner Frank E. Young has stated that the F.D.A. regulates products accounting for twenty-five percent of each consumer dollar spent, yet even this figure does not fully disclose the agency's vast reach, a reach that touches virtually everyone in the nation.

Whether he knows it or not, each person who opens a can of tuna, pops the lid on a soft drink, or eats a hamburger benefits from F.D.A.'s scrutiny of the food processing chain, and its screening of food additives and animal drugs. Each baby fed with infant formula is nourished with a product whose components are controlled by law and whose manufacture is overseen by the agency. Every person whose illness is revealed by a blood test or a CAT scan, whose retina is reattached through laser surgery, or whose mobility is restored through a hip replacement is safer and healthier because of the F.D.A.'s rigorous approval procedures. And each sufferer whose illness or pain is relieved by a pharmaceutical product owes a debt both to the regulatory system devised by Congress to ensure the safety and effectiveness of drugs, and to the dedication of the agency administering that system. What other federal organization is so intimately involved with our daily needs?

And yet, F.D.A. receives far fewer funds than one might expect from the magnitude of its task. Its FY 1989 appropriation request of $468.5 million amounts to approximately two dollars per year for each person in America. Clearly, the agency does not have the personnel or funds to fulfill all of its responsibilities to the fullest extent--it must set priorities, weigh competing statutory mandates and put resources where they will have the greatest impact. That the agency performs so admirably is a tribute to its leadership and to the dedication of those who man its various branches. We owe it to them, and to those who rely upon them--all Americans--to give them the support and the tools they need.

The Subcommittee may find it useful to trace the recent history of F.D.A. funding and personnel levels over the past ten years:

Funding:

| | |
|---|---|
| FY '79 | $302 million |
| FY '80 | 321 million |
| FY '81 | 327 million |
| FY '82 | 338 million |
| FY '83 | 362 million |
| FY '84 | 389 million |
| FY '85 | 413 million |
| FY '86 | 402 million |
| FY '87 | 434 million (not including 16 million for AIDS) |
| FY '88 | 451 million (not inlcuding 25 million for AIDS) |
| FY '89 (request) | 468.5 million (not including 65 million for AIDS) |

It is apparent that over the past decade, F.D.A.'s funding increases have not represented any real gain over inflation generally. Further, the cost of each employee more than outstripped the increase in the agency's budget over this period. From FY '79 through FY '87, F.D.A.'s appropriations were up 48 percent, while the cost of salary and benefits per staff year was up 75 percent.

And during this period the nature of F.D.A.'s duties has become more resource intensive. Not only has it had to monitor significantly greater imports of food and medical products; but the design of medical devices has become more complex; the ability to detect drug residues in food has increased, more rapidly than the ability to assess their consequences; groundbreaking "biological drugs" have made their appearance; the capacity to monitor post approval side effects of drugs has been greatly amplified; and new statutory duties such as those under the Drug Price Competition and Patent Term Restoration Act of 1984 have been added.

Against this backdrop, the history of the agency's personnel figures is even more revealing:

Personnel:

| | | |
|---|---|---|
| FY '79 | 8179 | full time equivalents (f.t.e.'s) |
| FY '80 | 8089 | |
| FY '81 | 7799 | |
| FY '82 | 7316 | |
| FY '83 | 7292 | |
| FY '84 | 7259 | |
| FY '85 | 7191 | |
| FY '86 | 7001 | |
| FY '87 | 6970 | |
| FY '88 | 6943 | (not including approximately 130 targeted to AIDS) |
| FY '89 | 6979 | (not including approximately 254 targeted to AIDS) |

Over the past decade F.D.A.'s staffing, under a series of externally decreed hiring freezes and f.t.e. ceilings, has decreased every year, until the current budget request. This incredible trend took place in the face of greatly increased agency responsibilities--the agency was required to do considerably more with considerably fewer resources.

The F.D.A., under Commissioner Young and Deputy Commissioner Norris, is doing what it can to respond. But frankly, the health of the agency, and of the American people, is largely in the hands of the Appropriations and authorizing committees of Congress. This Subcommittee has been supportive of the F.D.A. in the past, and we encourage it to strengthen its commitment to the agency's mission.

You have received the testimony of Commissioner Young regarding his FY 1989 appropriations request. We second that request, and we encourage the Subcommittee to move beyond it. We note that requests approved by the Department of Health and Human Services and by the Office of Management and Budget often represent the minimum required to begin addressing the situation, not the amount necessary to adequately meet the public need. While sometimes reflecting a need-driven crisis like AIDS, these requests are often assembled, in the context of a much larger overall federal budget, by adding a modest percentage to the previous year's baseline.

For the F.D.A. budget, this technique is not adequate. We urge the Subcommittee to instead seek out and grant the level of funding F.D.A. needs in order to do its job, to speed new human and animal drugs and devices to market, to monitor and control microbial contamination in the food supply, to keep on top of new developments. Does F.D.A. do a good job? Definitely. Could it serve the public better with more personnel, more funds? Without doubt, it could. The record breaking six month approval of Retrovir (AZT) impressively demonstrates what F.D.A. can do if it has additional resources. It is within your power to make those resources available throughout the agency.

We would like to direct your attention to four specific areas where the Subcommittee should look beyond the Administration's funding request. First, with respect to AIDS. The agency's portion of the unified Public Health Service AIDS account is $65 million, of which $45 million is targeted for personnel and expenses. This represents an increase from roughly 130 f.t.e.'s in FY 1988 to 254 f.t.e.'s in FY 1989. While this may seem like an impressive gain, the agency is seeing its initial projections exceeded time and again. An avalanche of new product trials for AIDS and related conditions is underway, and the agency predicts it will soon be swamped with resource-intensive, new drug approval applications of the highest priority. There are indications that instead of a 125 f.t.e. increase, more like 250 may be appropriate. It is not fair to AIDS sufferers to subject these applications to an ordinary approval schedule, nor is it fair to the victims of heart disease, cancer, and other afflictions to delay approvals for their drugs by diverting resources to AIDS. Each must be adequately funded.

The other $25 million of the F.D.A. AIDS budget is targeted for a new laboratory facility (Building 29B) on the N.I.H. campus, adjacent to an existing F.D.A. building. This facility is crucially needed today. That Building 29B will not be available for a couple of years is unfortunate, but is no excuse for not starting construction immediately. The facility should come on line just as the agency's AIDS resource needs have hit their peak.

The second area is that of recruitment and retention of qualified medical and scientific staff. Products subject to F.D.A. review pass through numerous levels of scrutiny. In order for these increasingly sophisticated products to be evaluated fairly, competently and speedily, it is necessary for the reviewing personnel at each level to be as able and conversant with current science as the researchers in the private sector and in academia who have discovered and developed these products.

Attracting staff of this quality is difficult. Talented people with the skills needed by F.D.A. are in demand and can command handsome compensation packages in industry. Benefits are first rate and the laboratory and other facilities are state of the art. On the other hand, working conditions at F.D.A., whether measured in terms of workload or physical surroundings, are difficult, and job satisfaction is more elusive than it is when one is involved in new product research. Further, F.D.A. staff are subject by and large to the same civil service structure and pay scale as other federal employees. This means that they can often obtain double their salaries or more by leaving government service.

Dr. Young and other agency leaders within the Public Health Service have struggled to address this problem. They have developed a proposed senior scientist program permitting them to supplement the salaries of senior scientists in order to recruit and retain the best talent in the service of these vital agencies. This plan has been cleared by the Department of Health and Human Services, but has not been included in the Administration's agenda. However, we anticipate that such an initiative will soon be proposed in Congress, and we request the Subcommittee to receive it warmly when it becomes authorized.

Third is the problem of F.D.A.'s physical facilities generally. The F.D.A. at first glance is concentrated at the Parklawn Building in Rockville, Md., an aging and inadequate facility that should be vacated at the end of the current lease, which is to expire shortly. But in reality, the agency's presence is fractured among numerous small, widely dispersed rental offices and laboratories in the District of Columbia and suburban Maryland. F.D.A.'s current mix of facilities is the product of historical and budgetary accident rather than the expression of a reasoned, purposeful intention to properly house the world's premier food and medical product regulatory agency. It is no secret that the agency would prefer consolidation in modern facilities. Such a move would increase efficiency, coordination, morale, and, if accomplished under an outright purchase or lease-purchase arrangement, would save the government considerable sums over the long term.

One positive step is envisioned by a plan to house the Center for Devices and Radiological Health in a new facility to be constructed under a lease/purchase arrangement on federally owned land at the National Bureau of Standards at Gaithersburg. This project has been cleared by the Department of Health and Human Services and by the G.S.A., but has not been included the Administration's budget because of general opposition to lease/purchase contracts. We hope the Subcommittee will review this opportunity and include it for funding.

We urge the Subcommittee to explore the possibility of completing the relocaton of the Center for Veterinary Medicine and the Center for Food Safety and Applied Nutrition to the F.D.A.'s Beltsville, Md. campus, and the relocation of the balance of the agency's review functions to a central site near the National Institutes of Health or the Uniformed Services University. Proximity to these institutions would also offer F.D.A. staff the opportunity to establish relationships with leading researchers, increase their own knowledge and skills, and would help the Commissioner in his desire to establish a more professional atmosphere among F.D.A. review and scientific personnel.

Finally, we believe there is an emerging need for additional highly trained staff in the regulation of biotechnology products. These products are spread across the agency's jurisdiction--pharmaceuticals, vaccines, animal drugs, foods, medical devices. Long the subject of speculation and promotion in the financial, medical and popular press, these developments are finally beginning to reach the agency in the form of product approval applications. Given the enormous potential of biotechnology, and the correspondingly enormous resources being devoted to the discovery and development of new products, it will not be long until the agency is, on this front too, overwhelmed by demands that can only be met by a sizeable body of highly trained biotechnology specialists that it does not possess.

It appears that approximately 200 additional f.t.e.'s are needed for this purpose. Given the leadership in product development demonstrated by foreign competitors such as Japan, it would be tragic if our own biotechnologoy industry, preeminent in basic research, were hamstrung in bringing its products to market by a lack of resources at the F.D.A. Here, again, we ask the Subcommittee to be guided in its reponse by the needs of the nation.

At this point, some will be shaking their heads, wondering silently how new initiatives can be launched at F.D.A. in times when federal dollars are scarce. The answer is straightforward: the needs we have spoken of are real, are serious, and affect every man, woman and child in America. They are not instigated by the Food and Drug Administration; they arise within the ongoing drama of plague and cure, of discovery and development, of suffering and hope that marks our daily struggle for a healthier, happier, more productive life. In many ways the Food and Drug Adminstration is the gatekeeper to that better life--it admits the good but bars passasge to the bad. We must give it the resources, the power, to quickly swing the gate for our collective benefit.

Thus we return to our underlying point--the F.D.A. serves an essential federal function, and we as a people must be willing to spend the sums necessary to do the job right. Any other course will expose Americans to needless risk, compel them to suffer needlessly and die prematurely, and will sap the vitality of important segments of our economy. Whether the figure is two dollars per person or three dollars per person, the price is cheap.

Mr. Chairman, the Coalition appreciates the opportunity present these comments to the Subcommittee and hopes that we will have the occasion to work with you to address the needs we have identified.

### BRIEF RECESS

Senator **Harkin**. Thank you, Senator Hatch. We will recess the subcommittee for about 10 minutes. When we come back, we will have Patrick Barbolla, the rural council chairman, National Association of Home Builders.

[A brief recess was taken.]

## National Association of Home Builders

### STATEMENT OF PATRICK BARBOLLA, RURAL COUNCIL CHAIRMAN

### ACCOMPANIED BY PATRICIA ECONOMOS, NAHB ASSOCIATE LEGISLATIVE REPRESENTATIVE

Senator **Burdick**. Our next witness will be Patrick Barbolla, rural council chairman, National Association of Home Builders. You may proceed.

Mr. **Barbolla**. Mr. Chairman, my name is Patrick Barbolla, and I am a developer of rural housing from Fort Worth, TX. I am here today on behalf of the 150,000 members of the National Association of Home Builders and as chairman of the association's rural housing council. Accompanying me today is Patricia Economos, NANB associate legislative representative.

Mr. Chairman, it is a pleasure to appear before you to present our views on the 1989 agriculture appropriation. It is with sincere appreciation that I take this opportunity to thank you for your dedicated efforts to provide funding for low-income families and the elderly in rural areas.

Other than the revised 1982 budget, this administration has proposed drastic cuts in rural housing programs every year since it has been in office. To be exact, for 7 consecutive years, the administration has proposed that the Farmers Home Administration's new construction programs become either severely reduced, totally eliminated, or substantially restructured. These proposals have included block grants, vouchers, and a transfer of all rural programs to HUD.

Mr. Chairman, we are pleased that this subcommittee has rejected these proposals over the years, and we urge you to provide funding for rural housing programs at last year's level. While we are pleased that the House and Senate budget action funded programs near 1988 levels, we are concerned that housing has taken more than its fair share of cuts.

Our 1988 policy statement expresses this very clearly:

Since 1980, budget authority for housing and community development has been cut by 70 percent. Other sectors of the economy must now pay their dues. Had all sectors of the budget been cut in the same fashion as housing, the United States would be running a budget surplus today.

Rural housing has been cut by a total of 50 percent since 1980 and is currently funded at approximately $2.18 billion. We again urge you to retain this level of funding for 1989 and to provide an adequate level of funding for rental assistance for existing contracts and new construction.

Mr. Chairman, we are also concerned that two new programs authorized in the 1987 Housing Act were not funded. This includes the Section 502 Moderate Income Loan Guaranty Demonstration Program and the buyout provisions of the section 515 prepayment prohibition legislation. We urge the subcommittee to provide adequate appropriations to fund these programs in both 1988 and 1989.

Concerning the Section 502 Loan Guaranty Demonstration Program, we urge Congress to: (1) provide for appropriations out of the very low income section 502 funds. This will allow a new financing approach to provide housing in rural areas and will make use of unspent very low income money; (2) devise a formula which will allow all States to have adequate funds to participate in this new program. Under the current formula, 10 States would receive no funding at all, including Mississippi and Tennessee. Fifteen other States would receive funding to produce only about 20 housing units per State, including the State of North Dakota. I would be pleased to supply for the record a listing of the allocations of all the States under the formula with the committee's permission; and (3) increase the definition of median income to 115 percent rather than the current 100 percent in current law, which was reduced in the final days of deliberation on the housing bill. This will provide housing for moderate-income borrowers who have no other access to credit or cannot find affordable housing in rural communities.

A buyout was provided for section 515 projects under the prepayment prohibition of the 1987 Housing Act to allow owners to sell their pre-1980 rural rental housing complexes to nonprofit organizations.

While money for the buyout was to come directly out of the section 515 funds, which have already been appropriated, the Farmers Home Administration interpretation is that the Appropriations Committee must make further provision for the program to be operative.

We recommend that additional funding be provided for the sale of the 4,000 units so that an owner's prepayment rights would not be broken while at the same time, retaining the housing for low-income use.

Mr. Chairman, a new task force report on housing states that, "Current Federal rural housing programs should be used consistent with budget priorities to improve housing conditions in rural areas."

At this time, I realize the red light has come on, and if you have any questions, I would like to answer them.

Senator **Burdick**. Thank you very much. I have one or two for you.

Does your organization represent rural nonprofit builders and developers as well as private enterprise developers?

Mr. BARBOLLA. I believe almost all of our members are private enterprise borrowers. We have some that actually are affiliated with a nonprofit, but a majority, if not an overwhelming majority of our members, are private enterprise individuals and corporations.

Senator BURDICK. What is your estimate of the number of new construction units needed this year in rural America? If we appropriate the same level as in 1988, could we meet this need? What about under the President's budget?

Mr. BARBOLLA. I believe the General Accounting Office or GAO did an analysis of new units that would be needed in rural housing, and I believe their estimate is by the year 1990 that there will be a need for 295,000 additional housing units in rural America.

The budget this year, in what we are asking for, will only provide approximately 27,000 units under the 502 program, and I believe it is 17,000 units under the 515 program, so we are barely scratching the surface of the estimated need in rural America.

Senator BURDICK. On those figures you give, you are not really going after the problem. There is a big shortfall.

Mr. BARBOLLA. How are we going to make up for the shortfall? By trying to develop innovative programs. For example, our committee right now is trying to develop, we have the 502, the loan guaranty demonstration program, which will be a combination of using private enterprises—using the sources in place to try to come up with an innovative financing mechanism. I am not sure what it would do to the income levels involved. Where is a need to have the Government involved in providing housing for the low-income people. We don't believe that private enterprise can do it all. It has to be a partnership.

Senator BURDICK. I know, but in the figures you just gave me, the rural housing is not very well supported compared to other housing.

Mr. BARBOLLA. It has been supported, but we have been cut 50 percent, and since 1990, the budget appropriations was approximately $4.1 billion, and for this year, it is going to be $2.18 billion. It has been cut substantially, but it has been supported. We do appreciate the $2 billion, but the need in rural areas of the country today is so overwhelming percentagewise, or, say, in comparison to urban areas, that there is a need not only for last year's funding, but probably for additional funding.

Senator BURDICK. What amounts are you suggesting for the moderate income and buyout programs?

Mr. BARBOLLA. The buyout program would be 5,000 units, and we believe the estimated cost would be between $49 and $55 million. That is what we are estimating the 515 buyout. The cost for the 502 Moderate Income Loan Guaranty Demonstration Program would be about $85 million, but that money we are requesting would actually be a transfer from the 502 very low income money that previously has been appropriated but is never used because it is just unused funds.

Senator **Burdick**. Thank you very much.

Mr. **Barbolla**. Thank you, Senator.

[The statement follows:]

## STATEMENT OF PATRICK BARBOLLA

My name is Pat Barbolla and I am a developer of rural housing from Fort Worth, Texas. I am here today on behalf of the 150,000 members of the National Association of Home Builders and as Chairman of the Association's Rural Housing Council.

Mr. Chairman, it is a pleasure to appear before you to present our views on the FY'89 Agriculture Appropriation. It is with sincere appreciation that I take this opportunity to thank you for your dedicated efforts to provide funding for low-income families and the elderly in rural areas.

Mr. Chairman, other than the revised FY'82 budget, this Administration has proposed drastic cuts in rural housing programs every year since it has been in office. To be exact, for seven consecutive years the Administration has proposed that the Farmers Home Administration's new construction programs be either severely reduced, totally eliminated or substantially restructured. These proposals have included block grants, vouchers and a transfer of all rural programs to HUD.

Mr. Chairman, we are pleased that this Subcommittee has rejected these proposals over the years and we urge you to provide funding for rural housing programs at last year's level. While we are pleased that House and Senate budget action funded programs near FY'88 levels, we are concerned that housing has taken more than its fair share of cuts.

> Our 1988 policy statement expresses this very clearly: "Since 1980, budget authority for housing and community development has been cut by 70 percent. Other sectors of the economy must now pay their dues. Had all sectors of the budget been cut in the same fashion as housing, the U.S. would be running a budget surplus today."

Rural housing has been cut by a total of 50% since 1980 and is currently funded at approximately $2.180 billion. We again urge you to retain this level of funding for FY'89 and to provide an adequate level of funding for rental assistance for existing contracts and new construction.

Mr. Chairman, we are also concerned that two new programs authorized in the 1987 Housing Act were not funded. This includes the Section 502 moderate income loan guaranty demonstration program and the buyout provisions of the Section 515 prepayment prohibition legislation. We urge the Subcommittee to provide adequate appropriations to fund these programs in both FY'88 and FY'89.

Concerning the Section 502 loan GUARANTY demonstration program we urge Congress to:

- o Provide for appropriations out of the very low-income Section 502 funds. This will allow a new financing approach to provide housing in rural areas and will make use of unspent very low-income money.
- o Devise a formula which will allow all states to have adequate funds to participate in the new program. Under the current formula ten states would receive no funding at all including Mississippi and Tennessee. Fifteen other states would receive funding to produce only about 20 housing units per state including North Dakota. I would be pleased to supply for the record a listing of the allocations of all the states under the formula.
- o Increase the definition of median income to 115% rather than the 100% in current law which was reduced in the final days of deliberation on the housing bill. This will provide housing for moderate income borrowers who have no other access to credit or cannot find affordable housing in rural communities.

A buyout is provided for Section 515 projects under the prepayment prohibition of the 1987 Housing Act to allow owners to sell their pre 1980 rural rental housing complexes to nonprofit organizations.

While money for the buyout is to come directly out of Section 515 funds, which have already been appropriated, the FmHA interpretation is that the Appropriation Committee must make further provision for the program to be operative.

We recommend that ADDITIONAL funding be provided for the sale of the 5,000 units so that an owner's prepayment rights will not be broken while at the same time retaining the housing for low-income use.

Mr. Chairman, a new Task Force report on housing states that "current federal rural housing programs should be used consistent with budget priorities, to improve housing conditions in rural areas." The Task Force report states that if programs are expanded and adequately funded, housing conditions in rural America would be improved.

We agree with the Task Force Report that the FmHA housing programs are uniquely suited to rural areas. They have an excellent delivery system with over 2,000 offices located across the country to help make housing loans to needy rural families and the elderly whose incomes are generally below 80 percent of area median.

In conclusion, we urge you to provide FY'88 levels of funds for rural housing programs with adequate levels of rental assistance funding for new construction. We also support funding for the 502 loan guaranty program and appropriation to implement the buyout provisions of the Section 515 prepayment legislation.

We also urge you to support adequate levels of funding for rural infrastructure which includes public works for water and sewage projects.

Thank you for allowing us to present our views. I would be pleased to respond to any questions you may have.

## SECTION 502 LOAN GUARANTY PROGRAM

### STATES WITH LITTLE OR NO FUNDING FOR THE
### MODERATE INCOME
### SECTION 502 LOAN GUARANTY PROGRAM

An appropriation to fund the moderate income Section 502 loan guaranty demonstration is needed for the program to be implemented this year. Even with an appropriation, however, only 50% of the States would have adequate funding to participate. We are also concerned that the definition of moderate income was changed in the final deliberations on the housing bill from 115% of area median income to only 100%.

Under the formula provided by Congress a state is allowed to use the lower of 10% of their total loan authority in the current year or the average of the states unused funds over the previous three years for the moderate income program. Any amount not used for this demonstration before the last 60 days of the fiscal year can be spent for low income families under Section 502. The following are states with little or no money to participate.

States with no money to participate in the Section 502 moderate income loan demonstration program.

Connecticut
Hawaii
Maine
Mississippi
New Jersey
Rhode Island
South Carolina
Tennessee
Vermont
(Puerto Rico)

States with less than $500,000 to participate in the program.

Alaska
Delaware
Massachusetts
Nevada
New Hampshire
Utah
Wyoming

States with less than $1 million to participate in the program.

California
Colorado
Idaho
Montana
Nebraska
New Mexico
North Dakota
South Dakota

We Urge Congress to:

1. Provide for appropriations to fund the moderate income Section 502 demonstration program out of the very low income funds. This will allow a new financing approach to provide housing in rural areas and will make use of unspent very low income money.
2. Devise a formula which will allow all states to have adequate funds to participate. One million dollars will only fund about 20 housing units. Ten states would receive no funding at all.
3. Increase the definition of median income to 115% rather than the 100% in current law. This will provide housing for middle income borrowers who have no other access to credit or cannot find affordable housing in rural communities.

## SECTION 502 MODERATE INCOME LOAN GUARANTY DEMONSTRATION ALLOCATION FORMULA

| STATES | FY'88 TOTAL 502 SUB ALLOCATION | AMOUNT OF GUARANTY 10% OF FY'88 ALLOC. | FUNDS AVAILABLE LOAN PROGRAM AVG. UNUSED FUNDS | LESSER OF 10% OF ALLOC. OR UNUSED FUNDS |
|---|---|---|---|---|
| Alabama | $ 29,504,000 | $ 2,950,400 | $ 10,729,544 | $ 2,950,400 |
| Alaska | 4,056,000 | 405,600 | 1,428,397 | 405,600 |
| Arizona | 11,079,000 | 1,107,900 | 2,742,640 | 1,107,900 |
| Arkansas | 22,024,000 | 2,202,400 | 2,478,697 | 2,202,400 |
| California | 40,255,000 | 4,025,500 | 535,370 | 535,370 |
| Colorado | 9,656,000 | 965,600 | 7,424.837 | 965,600 |
| Connecticut | 8,172,000 | 817,200 | 0 | 0 |
| Delaware | 2,692,000 | 269,200 | 243,663 | 243,663 |
| Florida | 28,019,000 | 2,801,900 | 2,140,269 | 2,140,269 |
| Georgia | 38,024,000 | 3,802,400 | 36,069,337 | 3,802,400 |
| Hawaii | 3,679,000 | 367,900 | 0 | 0 |
| Idaho | 7,483,000 | 748,300 | 4,510,120 | 748,300 |
| Illinois | 32,859,000 | 3,285,900 | 21,926,152 | 3,285,900 |
| Indiana | 30,447,000 | 3,044,700 | 20,237,925 | 3,044,700 |
| Iowa | 19,629,000 | 1,962,900 | 7,498,387 | 1,962,900 |
| Kansas | 14,692,000 | 1,469,200 | 14,427,309 | 1,469,200 |
| Kentucky | 34,413,000 | 3,441,300 | 9,652,990 | 3,441,300 |
| Louisiana | 25,717,000 | 2,571,700 | 1,823,080 | 1,823,080 |
| Maine | 11,141,000 | 1,114,100 | 0 | 0 |
| Maryland | 12,601,000 | 1,260,100 | 3,190,047 | 1,260,100 |
| Massachusetts | 13,628,000 | 1,362,800 | 420,230 | 420,230 |
| Michigan | 38,494,000 | 3,849,400 | 13,427,143 | 3,849,400 |
| Minnesota | 22,434,000 | 2,243,400 | 13,478,630 | 2,243,400 |
| Mississippi | 25,638,000 | 2,563,800 | 0 | 0 |
| Missouri | 27,533,000 | 2,753,300 | 11,307,830 | 2,753,300 |
| Montana | 6,357,000 | 635,700 | 3,378,030 | 635,700 |
| Nebraska | 9,382,000 | 938,200 | 4,836,520 | 938,200 |
| Nevada | 2,252,000 | 225,200 | 1,051,528 | 225,200 |
| New Hampshire | 6,828,000 | 682,800 | 260,133 | 260,133 |
| New Jersey | 10,829,000 | 1,082,900 | 0 | 0 |
| New Mexico | 9,151,000 | 915,100 | 19,092,667 | 915,100 |
| New York | 38,565,000 | 3,856,500 | 14,887,598 | 3,856,500 |
| North Carolina | 51,757,000 | 5,175,700 | 26,959,863 | 5,175,700 |
| North Dakota | 5,314,000 | 531,400 | 2,020,660 | 531,400 |
| Ohio | 44,869,000 | 4,486,900 | 16,888,063 | 4,486,900 |
| Oklahoma | 18,835,000 | 1,883,500 | 8,135,420 | 1,883,500 |
| Oregon | 15,429,000 | 1,542,900 | 4,487,833 | 1,542,900 |
| Pennsylvania | 53,464,000 | 5,346,400 | 14,360,283 | 5,346,400 |
| Puerto Rico | 27,779,000 | 2,777,900 | 0 | 0 |
| Rhode Island | 1,710,000 | 171,000 | 0 | 0 |
| South Carolina | 26,239,000 | 2,623,900 | 0 | 0 |
| South Dakota | 6,511,000 | 651,100 | 5,435,973 | 651,100 |
| Tennessee | 32,578,000 | 3,257,800 | 0 | 0 |
| Texas | 57,898,000 | 5,789,800 | 29,525,866 | 5.789,800 |
| Utah | 4,271,000 | 427,100 | 273,287 | 273,287 |
| Vermont | 5,340,000 | 534,000 | 0 | 0 |
| Virgin Island | 3,051,000 | 305,100 | 2,252,100 | 305,100 |
| Virginia | 32,814,000 | 3,281,400 | 10,519,306 | 3,281,400 |
| Washington | 18,122,000 | 1,812,200 | 4,323,952 | 1,812,200 |
| West Pac Island | 8,279,000 | 827,900 | 66,280 | 66,280 |
| West Virginia | 21,192,000 | 2,119,200 | 9,647,370 | 2,119,000 |
| Wisconsin | 26,224,000 | 2,622,400 | 3,632,701 | 2,622,400 |
| Wyoming | 3,801,000 | 380,100 | 447,027 | 380,100 |
| TOTALS: State Total | $1,062,710,000 | | | $83,752,912 |
| Reserves | $ 204,000,000 | | | |
| Total | $1,266,710,000 | | | |

SOURCE: Farmers Home Administration; compiled by the Nat'l Assn. Home Builders

## INDIANA RURAL CRISIS CENTER

### STATEMENT OF SUSAN BRIGHT

Senator **BURDICK**. Our next witness is Susan Bright, Indiana Rural Crisis Center.

Ms. **BRIGHT**. Thank you, Senator Burdick. I am pleased to be here today. I am making this statement on behalf of the National Save the Family Farm Coalition, Interfaith Action for Economic Justice, the American Agriculture Movement, the National Farmers Union, the National Council of Churches, and the League of Rural Voters. This is a combination statement. I have a complete statement that is going to be entered in the record. I just want to summarize.

Senator **BURDICK**. The statement will be received.

Ms. **BRIGHT**. Thank you. Also, I want to say thank you for your work on the Farm Credit Act in getting it passed for us; that was signed in January. It was a very important piece of legislation, and we feel that the mediation language in there was one of the most important parts of it, and yet it is also the least costly of that, and we are here today to ask that you very strongly consider funding that mediation language in the effect of $3 million this year and $7.5 million for fiscal year 1989.

In Indiana we were able to pass a State mediation program, not quite as strong, maybe, as we would have liked to, but we feel that with the compromises in Farm Credit, and if Farmers Home is willing to work with us on this, that we do have a good program if it is implemented. The real key is the money. One of the things that the State legislature looked at was the language that was in this credit bill, and now they are saying, "Where is the funding?" So the funding is real important. The State is going to put forth a few dollars, but it is really key that we have well-trained mediators that really implement this bill as it was intended to do so.

We think the very act of farmers being able to mediate their debts, always with the least cost alternative in mind, is going to save the State money; it is going to save the Federal Government and the other lenders money; and it is going to save family farms. That is what we are interested in.

It is not a lot of money, but it is going to be the very thing that implements this legislation. This is going to be one of the only times that farmers are going to be informed of what their rights and options are under this new legislation—through well-trained mediators in a mediation session. We think that is real, real important.

Farm Credit and Farmers Home do not have a good track record of informing their borrowers of what their rights and what their options are. We, in the Rural Crisis Center, and in groups across the country, have been operating on a shoestring budget, trying to do these things, but in our State alone, Farm Credit sent out 2,700, 45-day letters, and these are people who could very well use a mediator. It would be less costly than an attorney or any kind of a legal battle, and yet it is going to try to arrive at this least cost alternative of restructuring in a much better way than the other alternatives that we have had in the past.

So that is what we are here for. We are asking that this committee see to it that we get funding, and it is urgent. We need the funding. This thing is on a fast track. We think it is going to even step up this summer when the Farmers Home Administration comes out with their final regulations, and they are going to move rapidly to try to resolve all these delinquencies. We desperately need these kinds of programs so that people are informed, so they have some idea of what they can possibly do in restructuring. This is new to them, it is a law now, but attorneys are not even informed. That is not a criticism, but it is just a fact that these things take time. We have a real shortage of qualified, informed attorneys on this particular area of law.

That is the gist of my statement. Can I answer any questions?

Senator BURDICK. One of your recommendations on the last page of your testimony that you ask for is a $3 million supplemental appropriation for 1988 and $7.5 million for 1989 funds for the mediation program; is that correct?

Ms. BRIGHT. Right.

Senator BURDICK. How does mediation assure farmers' rights?

Ms. BRIGHT. Because it simply informs them of what their rights are. Because this idea of debt restructuring down to fair market value, least cost alternative to lenders and yet, if that farmer can qualify, leave that farmer in place as opposed to completely liquidating him and putting somebody else in, a new borrower.

This is a fairly new concept, especially with Farm Credit and Farmers Home Administration. If farmers realize they have an opportunity, this is what they can aim for. If they can do as good a job or maybe better than a new borrower, then they have the right to try, and that is something they need to be informed of.

Senator BURDICK. How many states have mediation? According to the information I have, there are three; is that right?

Ms. BRIGHT. They all have varying degrees of a mediation program. For example, Illinois passed a program, but then it was vetoed by the Governor because of lack of funding. We just passed ours this year. It looks like Kentucky's could possibly be lost in this session of the legislature. I believe Oklahoma, Iowa, and Minnesota are the three that have been in place the longest. I think Colorado maybe has just passed one, but all of them are sort of like in fledgling stages.

The funding is going to make or break them. They may have a law in the books, but if it is very, very underfunded, a lot of that funding goes into training of mediators. Like I said, it is real important that we have well-trained and, we think, large numbers of mediators are going to be necessary later this year when the FHA regulations are in place.

Senator BURDICK. Now, the three States that you have in your testimony have been approved, Indiana, Kansas, and South Dakota. Are those mediation programs run and handled by the States themselves?

Ms. BRIGHT. Yes, sir; I believe so. I am not real familiar with any of them except ours and Iowa's, which we based ours pretty much on the way Iowa's was run. They are all trying to put something together that will meet Federal guidelines and pretty much based on Iowa's, but in our State, it is a voluntary program, where Iowa's is a mandatory program. But when everyone said, "Yes; we will participate if it is not mandatory," then we agreed to make it a voluntary program.

Senator **Burdick**. Thank you very much.

Ms. **Bright**. Thank you.

[The statement follows:]

## STATEMENT OF SUSAN BRIGHT

My name is Susan Bright of the Indiana Rural Crisis Center. We come before you today on behalf of Interfaith Action for Economic Justice, the National Council of Churches, the American Agriculture Movement, the National Farmers Union, the National Save the Family Farm Coalition, and the League of Rural Voters in support of an appropriation to fund matching grants to states operating farm credit mediation programs.

The Agricultural Credit Act of 1987, PL 100-233, as you know, authorizes the USDA to make federal matching grants to states for up to 50 percent of the cost of their state mediation programs. Due to the late passage of that bill, this committee was unable to include the necessary funds in the regular FY 1988 agriculture appropriation. We ask you to do so now, at the earliest date possible, and to make FY 1989 funding for mediation programs a part of the FY 1989 appropriations bill you are now considering.

We believe this federal incentive for state mediation programs is the strongest and most positive element of the new Farm Credit Law, and the key to its success. Mediation programs offer the best assurance that a farm family's rights under that law will be protected during proceedings against them.

Existing evidence indicates that mediation reduces the fiscal and human costs of debt settlement for both borrowers and lenders. In states where mediation programs operate, the results have been positive. Lenders who previously opposed the programs now praise the results.

### Lack of Funding for Federal Matching Grants Impedes Existing and Pending Mediation Programs

The struggle in the state of Illinois to implement a mediation program illustrates the fact that lack of expected federal matching grants will impede both existing and pending programs. Last year, the Illinois state House of Representatives and Senate passed a mandatory mediation bill with a good margain of bipartisan support. Farm advocates, were pleased until Governor Thompson vetoed the bill, stating that the measure was too costly for the state budget. Advocates there are again seeking passage of the mediation bill and feel if matching funds are appropriated by the federal government, the chances of passing a mandatory program are reasonably good. If no funds are provided, we feel the bill will fail.

Interfaith Action for Economic Justice recently surveyed states with existing programs or where legislation was pending to establish programs. These findings, summarized below, reflect the comments most of our agencies are receiving from the field.

In states where mediation programs exist, the state governments or agencies contracted by the states to operate the programs report:

1. An urgent need for the federal grants promised in the legislation. Several program budgets were prepared in expectation of early receipt of these funds. Most of these have already been certified by the USDA or are well along in that process

2. An actual or expected increase in the volume of requests for mediation as the new law comes into effect. Several states note that debt settlement cases which have been postponed will rise in volume when the new law comes into effect.

3. Where mediation programs are in effect, borrowers who have settled in this interim period have had a better chance of receiving their full rights under the new law. Farm Credit System has been more cooperative and fewer abuses were reported in states and even FCS districts where mediation programs exist.

4. States where mediation programs have operated for several years report an increased need for funds to provide some compensation to volunteer mediators who are

starting to burn out after several years of intense labor, often in addition to their regular employment. Additional funds are also needed to train more mediators so expanding case volumes can be accomodated and mediators lost through turn over replaced.

5. Mediators, program administrators and farm and church advocates express great doubt that the federal government will operate in good faith and deliver on its commitment to support state mediation programs, which they view as an essential aspect of the new farm credit law. These programs have been operating on shoestring budgets, several respondents noted, with strong financial and in-kind support from the religious and farm community.

Lack of funding has made planning and budgeting very difficult for the states operating programs. Oklahoma will need to make deep cuts in its program and greatly reduce needed services if the funds do not materialize. Other states will need to make similar and severe program adjustments. The states also underscored the necessity of a yearly grant rather than periodic reimbursements, so they can make budget plans to assure adequate staffing and support.

In states where legislatures are now considering mediation programs, advocates report:

1. The doubt surrounding the availability of federal money is hampering efforts to secure approval of these programs. In a few places, advocates feel the lack of federal funds feed into efforts to downgrade proposals for mandatory programs to less expensive voluntary programs. In Illinois, the State Senate is considering two bills, a mandatory program modeled after Iowa, and a very weak voluntary system. The availability of matching funds will have precise bearing on the system implemented in Illinois.

2. Farmers and advocates are increasingly frustrated and confused by the continuing delay in the long-promised implementation of borrowers rights provisions approved last year. Several Farm Credit System Districts are continuing debt settlement on the basis of the old law. Such actions are especially frustrating because farmers are aware other districts, particularly those where strong mediation programs exist, are instituting new procedures and ceasing activities which may conflict with the new law.

St. Louis District is proceeding with business as usual, arguing they are already in compliance with the new law. In fact, they have not provided a method to calculate either restructuring costs or the cost of foreclosure that would allow a farmer to work out a restructuring plan. Mediation, in many cases, could help both the farmer and FCS make this comparison to see if rebuilding was beneficial for both borrower and lender. Without mediation, farmers have very little assurance their new rights are being observed. So far this year, the following legislative results have been achieved:

**1988**

| **Approved** | **Denied** | **Pending** | **Unconfirmed** | **Under Study** |
|---|---|---|---|---|
| Indiana | California | Illinois | Georgia | North Carolina |
| Kansas | Idaho | Louisiana | New York | |
| South Dakota | Kentucky | South Carolina | Nebraska | |
| | Missouri | | Pennsylvania | |
| | Tennessee | | Texas | |

The groups presenting this statement would further note that the farm and church communties have on an interim basis done all they can on shoestring budgets to provide needed services to farmers. Farm Aid has provided, and the National Council of Churches distributed, $1.8 million dollars to state ecumenical agencies and rural organizations to provide emergency food and family assistance to farm families in need. Farm Aid, the ecumenical and interfaith community , farm groups and other agencies have also provided additional support for hotlines, other emergency programs, counseling and other services. Several such agencies help fund and operate state mediation programs. A large percentage of the mediators who volunteer their time come from farm and religious groups. These groups urgently need this federal support for mediation to complement their other services.

## The Benefits of Mediation Programs

This committee is keenly aware of the need to make the best use of scarce federal resources. The cost of the new farm credit law, including varying cost estimates for the new Farmers Home Administration borrowers protections, is one of the major uncertainty this committee must face in the FY 1989 appropriation for agriculture. We maintain that the modest funding necessary to make matching grants to states, approximately $3 million for FY 1988 and $7.5 million for FY 1989, will result in direct and significant savings in agriculture expenditures in the coming year.

Under the new law, FCS institutions and the FmHA are required to restructure loans when that option is cheaper than foreclosure. Mediation allows for a more careful and less adversarial exploration of options available to benefit both the borrower and lender. Preliminary studies by the Center for Rural Affairs (see chart) indicate that where mediation programs are in place, bankruptcy rates are much lower than in states without mediation programs. Mandatory programs have a somewhat greater impact on the bankruptcy rate than voluntary ones, according to the Center's findings. Bankruptcy is a lengthy and costly process for both farmers and their creditors and one that can be avoided when mediation is successful.

**Comparison of Chapter 12 Filings and Mediation**

| State | No. of* Farmers | No. of** Chpt. 12's | No. of 12's/ 1000 Farmers | Type of Mediation |
|---|---|---|---|---|
| S. Dakota | 36,000 | 460 | 12.8 | None |
| Nebraska | 57,000 | 617 | 10.8 | None |
| N. Dakota | 33,000 | 154 | 4.7 | Voluntary |
| Iowa | 109,000 | 341 | 3.1 | Mandatory |
| Minnesota | 93,000 | 145 | 1.6 | Mandatory |

*USDA Agricultural Statistics Service
**Number of filings as of January 5, 1988

Several mediators surveyed noted that the practical expectations of the new law will vary widely. Without mediation programs in place, farmers and lenders are likely to take their disputes to court. The cost of such legal action may be tremendous. The Farm Credit System, the FmHA and other creditors can gain as much or more than the farmer by using experienced mediators to settle difficult cases.

The staff and legal time involved needed for mediation is measured in hours. Court disputes require days, weeks and months. The contrasts between mediated settlements and continuing disputes are already apparent:

In Iowa, the Farmer/Creditor Mediation Service looked beyond its caseload of individuals and brought the Omaha Farm Credit System district, the entire Iowa congressional delegation and representatives of farm and church groups together around the table to address some very real concerns about how FCS at the district level was handling cases prior to the implementation of the new law. As a result, the parties have already achieved compromise and clarity on how land sales should be conducted during the period before the new legislation is set in place. Agreements on other matters are pending. Such discussions are likely to continue into the future, to the advantage of all parties concerned.

In Oklahoma, FCS Witchita District representatives traveled around the state with the Oklahoma Ag-Link Coalition, which operates the state mediation program. Lines of communication btween lenders and advocates remain open there as well.

The story in the St. Louis FCS District is very different. There, the Farm Credit System has testified in the Missouri State Legislature against mediation bills that failed in 1987 and 1988. Debt settlement action continues on the basis of the 1971 Act, and farmers are being asked to sign waivers of their rights under the new legislation. From Missouri, we are hearing deep frustration and talk of seeking injunctions against sales, class action suits and clear cases of lack of due process. In Mankin, Missouri, nearly all of the 100 farmers in attendance at a recent meeting reported severe problems with FCS. Levels of anguish and anger are reaching crisis levels, according to religious and farm group advocates.

In Illinois, farmers are suffering the same unfair treatment from lenders. There, St. Louis district has been disposing of thousands of acres of inventoried land without offering the right of first refusal guaranteed previous owners under the new law. Last month, farmer was prepared to repurchase his land for above the price received when the land was sold at the auction. Because the person bidding against him knew he had a fixed limit on his funding, and was able to keep outbidding him at $5 increments, he lost his farm and FCS received a lower price than necessary. The outcome was not good business for either party. Three nearby farmers are preparing to file lawsuits against FCS on the same issue.

Another farmer who was issued a foreclosure notice on the day the President signed the law was denied any consideration of restructuring. Two other parties will sue FCS due to similar denials. The St. Louis policy will force customers who can cashflow with restructuring to remove viable business ventures from FCS. Such practices hurt farmers who could rebuild and are counterproductive to the rebuilding of a credit institution in poor financial health whose main clients are farmers. Mediation in all these cases could solve disputes in a more expedient and less costly manner.

Most states contacted are banking on receipt of the funds, either now or as soon as they put programs in place. A number of states do feel the Department is not operating in good faith, pointing to the lack of a request for FY 1989 mediation funds as evidence. Others expressed doubt that mediation funds are forthcoming, and feel they will come too late if they do arrive. FmHA's unwillingness to get behind the program is indicative of its lack of understanding of how mediation works and what it can achieve, state agencies feel.

Through mediation, the FmHA could learn how better to negotiate with farmers and reduce the amount the agency will need to write off, one mediation program administrator pointed out. FmHA needs to acknowledge what has already happened and been lost, and to work with farmers for the best outcome in cases still pending. These lessons are worth the FmHA's time and effort, because the cost savings can again be substantial.

The rural crisis in America is not limited to farm families. Foreclosures also hurt smaller creditors . Mediation , I would point out, also assists rural businesses and communities and independent banks. The Minnesota program, for example, reports that while 36 percent of the lenders involved in their cases are FCS institutions, and 11 percent commercial banks, another almost 50 percent are implement dealers such as John Deere, credit corporations, vendors and insurance companies.

States using mediation believe in it strongly. They feel the study required under Section 505 of title V in the Farm Credit Act is of utmost importance to demonstrate the effectiveness of mediation in general and specific applications of mediation in particular. They recommend funds be provided so FmHA can contract, in consultation with existing mediation programs, an agency with the expertise necessary to complete the study.

## Recommendations

**We strongly recommend that the committee do everything in its power to make available a $3 million supplemental appropriation for FY 1988, recognizing there is an emergency need for these funds. And, we urge you to include a full $7.5 million in regular FY 1989 funds for federal grants to state mediation programs.**

We also recommend the committee clarify the following items in the appropriations legislation:

1. States with mediation programs in place on the date the law was signed should be eligible for funding retroactive to the fiscal year they were in on that date .

2. The committee should consider providing funding and instructing the Department to contract an appropriate agency, selected in consultation with administrators of existing state mediation programs, to prepare the report required in Sec. 505 of Title V.

3. The term "adequate notification" should be clarified. Several states operating voluntary mediation programs worry that a small official notification included among the many other papers sent to borrowers by financial institutions may be lost and borrowers left unaware of mediation services. They recommend that adequate notification be defined so as to require that mediation be included in the list of options provided for loan servicing in states where programs exist, and it be made clear in such notices that parties entering mediation are not required to reach a settlement or produce a binding agreement.

4. In order to assure that mediation programs which all urgently need the federal funds receive them in due course, Congress should require that 90% of reimbursements be provided within 30 days of submission.

Such clarification will increase the number of borrowers and lenders who use mediation as an option, and should result in additional cost savings in debt settlement. Once again, I urge you to appropriate these urgently needed funds for mediation programs. I thank you for hearing my testimony.

## STATUS OF STATE MEDIATION PROGRAMS

## EXISTING PROGRAMS

### Mandatory Programs

| | Date est. | Status | Funding | FY Start | No. of Mediators | Cases | Settlm't Rate |
|---|---|---|---|---|---|---|---|
| Colorado | 7/87 | State contr'd | client fees | | 30 | | |
| Iowa | 7/85 | State contr'd<br>USDA cert. | $200,000 | 7/1 | 350 | 6200 | 73% |
| Minnesota | 3/86 | State run<br>USDA cert. promised | $1,124,448.<br>$1,859,244 | 7/1 | 182 | 5517 | 50% |
| *South Dakota | 3/88 | State run | $100,000 | 7/1 | | begins 5/30/88 | |

### Voluntary Programs

| | Date est. | Status | Funding | FY Start | No. of Mediators | Cases | Settlm't Rate |
|---|---|---|---|---|---|---|---|
| *Indiana | 3/88 | State run | client fees | | awaiting state appropr. | | |
| *Kansas | 10/86<br>3/88 | Private<br>State run cert. requested | | | 25<br>$300 -$400,000 FY 1989 (expected) | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Miss. | 1/87 | State run USDA cert. | state/private | 6/1 | 20 | 280 | 80% |
| Montana | 4/87 | state run | | | 20 | | |
| Nebraska | | private | $50,000 | | | | |
| North Dakota | 3/84 | State run | $1,000,000 (2yr) | 7/1 | 35 | 3227 | 100% resolved<br>80% farm saved |
| Oklahoma | 7/87 | State contr'd USDA cert. | | 7/1 | 22 | 46 (1988) | 86% |
| Wisconsin | 5/86 | State run cert. requested | $170,900 | 7/1 | | 35 (1988) | 75% |
| Wyoming | 5/87 | State | $25,000 (FY 1989) | 7/1 | | | |

## Programs Pending

| | | | |
|---|---|---|---|
| California | 3/88 | Mand. | defeated in Senate Judiciary Committee |
| Georgia | | | |
| Idaho | 1988 | | defeated, funding problematic |
| Illinois | 1987 | Mand. | passed by legislature in 1987 |
| | 8/87 | | governor vetoed funding ($40,000) |
| | 4/88 | Mand. | passed House Agriculture Committee |
| Kentucky | 3/88 | Mand. | lost in legislature |
| Louisiana | 1987 | Mand. | defeated in Committee |
| | 4/88 | Mand. | bill to be introduced - passage likely but approval of state funds doubtful |
| Missouri | 1987 | Mand. | did not pass ($200,000) |
| | 1988 | Mand. | defeated in committee |
| Nebraska | 1987 | Mand. | defeated |
| | 1988 | Mand | pending |
| New York | | | |
| North Carolina | 1987 | Mand. | Bill passed to establish study committee to develop proposal for 1989 session |
| Pennsylvania | | | |
| South Carolina | 1988 | Mand. | Under consideration in Special Ag Subcommittee |
| Tennessee | 1988 | Mand. | Lost in legislature |
| Texas | | | |

## NATIONAL UTILITY CONTRACTORS ASSOCIATION

### STATEMENT OF JAY MATRICCIANI, PRESIDENT-ELECT

Senator BURDICK. Our next witness is Mr. Matricciani, president-elect, National Utility Contractors Association.

Mr. MATRICCIANI. Mr. Chairman, members of the committee, as president-elect of the National Utility Contractors Association, or NUCA, I represent 1,800 companies nationwide that specialize in the construction of water delivery and wastewater treatment projects. Because many of the systems built by NUCA members are financed by the Farmers Home Water and Waste Disposal Program, I will take this opportunity to very briefly offer the construction industry's views on this program.

For several years, the current administration has urged the Congress to terminate or drastically reduce Federal funding for this program. Fortunately, through the leadership of Chairman Burdick and this panel, the Water and Waste Disposal Program is still being funded at a level of $440 million annually. Had it not been for the work of this subcommittee and your Senate counterpart, there is little doubt that this vital program would have been history.

Frankly, Mr. Chairman, we are asking for a repeat performance for fiscal 1989. Quite simply, a minimum of $440 million in appropriations is again necessary if this program is to remain a functional and effective one.

Obviously, our industry has a vested interest in funding for this Farmers Home Program. There can be no doubt, however, that this financing is absolutely vital to the Nation's smaller rural communities.

Respected studies in recent years have identified more than $200 billion in water delivery and sewage treatment construction needs for the current population within the next 15 years. The two major Federal programs that finance this work are under the EPA and Farmers Home. Despite these acknowledged needs, the Reagan administration's fiscal 1989 budget request for the two programs represents a staggering 54 percent reduction from congressional appropriations as recently as 1980.

Specifically, the reduction is from $4.4 billion in fiscal 1980 to the proposed 1989 total of just $1.6 billion, which is included in the President's budget request to Congress.

It is also important to keep in mind that this Farmers Home Program used to be funded at nearly $1 billion annually in the late 1970's. Given the more than 50 percent drop in funding levels, we feel strongly that this program has already been pared to the bone.

While funding levels have dropped, the construction needs of low-income, rural communities for water and sewer systems have not. As of April 12 of this year, just 2 weeks ago, the number of applications and preapplications for FmHA grants and/or loans numbered 1,651, totaling just over $1 billion. This includes $10.9 million for projects in North Dakota.

I ask permission to insert a State-by-State breakdown of these figures for the information of the committee at this time, along with fiscal 1980 and 1987 allotment totals for each State.

You will note, Mr. Chairman, that North Dakota received 20 grants and loans totaling $5.8 million in fiscal 1980. Fiscal 1987 figures were reduced to nine grants and loans totaling just $1.85 million. Mr. Chairman, the need for this funding and its importance to rural communities can be categorized under two major headings: Environmental and Economic.

Although the EPA Construction Grants Program makes more than $2 billion in grants annually for sewage treatment projects, only a small percentage is directed toward the smaller rural areas. Sewage treatment facilities are also necessary in many rural areas to replace septic systems that often pollute the drinking water.

On the economic front, we must realize that a sound network of water and sewage treatment facilities is essential to local economic growth. It has been the experience of many of NUCA's member companies that business is vitally needed to provide an infusion of capital and jobs locate elsewhere due, at least in part, to inadequate water and sewer facilities in some rural areas.

In summary, Mr. Chairman, it is clear that rural communities still have an acute and urgent need for water and sewer system construction financing. The Farmers Home Program is often the financing source of last resort for a number of poorer communities.

I see the red light is on, sir.

Senator BURDICK. Thank you. Does your confederate have a statement of any kind?

Mr. DAVIS. No, sir.

Senator BURDICK. Assuming your recommendation for $440 million is approved for the Water and Waste Disposal Program, do you believe primary emphasis should be given to maintaining and upgrading the existing rural systems, or should primary emphasis be given to expansion and new construction projects?

Mr. MATRICCIANI. I think that, from a personal point of view, sir, you are going to have to go with the new projects and expand. It is a minimal level of $440 million, sir.

Senator BURDICK. If you had your alternative, you had your choice, you would go for new programs or new construction?

Mr. MATRICCIANI. Yes, sir; and even more funding.

Mr. DAVIS. Well, sir, I think that there is no question that many communities do need additional funds to complete the projects already underway. There is no question that they do need to be wrapped up, but that does not negate the need for continuing the progress in meeting wastewater treatment needs, water supply needs for additional rural communities who have yet to begin construction on new projects.

So in regard to the emphasis given to Federal funds, the association, I don't really feel, has an opinion as to whether it should be targeted one way or the other, but perhaps that flexibility should be retained by the Farmers Home Administration in determining where the money is perhaps best needed, where to get more bang for the buck within the rural community.

Senator BURDICK. In other words, you are refraining from an emphasis here; aren't you?

Mr. **Davis**. You might say that.

Senator **Burdick**. Thank you very much.

Mr. **Davis**. You are welcome. Thank you, Sir.

Mr. **Matricciani**. Thank you, Mr. Chairman.

[The statement follows:]

## STATEMENT OF JAY MATRICCIANI

Mr. Chairman and members of the Committee, the National Utility Contractors Association (NUCA) is comprised of 1,800 contractors, suppliers and manufacturers nationwide that specialize in the construction of water supply and wastewater treatment projects. Many of the water and sewer systems built by our members are financed through the Famers Home Administration (FmHA) Water & Waste Disposal grant and loan program.

As a result of our work in constructing the facilities financed by this important program, I will take this opportunity to offer the construction industry's views on the program and its effectiveness.

I begin by expressing the industry's staunch opposition to President Reagan's plan to sharply curtail funding for the Water and Waste Disposal Program in fiscal 1989.

Our nation has been alerted over recent years to the crumbling condition of our infrastructure. Studies indicate that spending for our system of public works must be significantly increased at all levels of government just to keep pace with current needs. In fact, a highly respected study by the National Council on Public Works Improvement, a study panel created by Congress, estimates that capital spending for infrastructure projects should be increased by 100%. The panel also emphasizes that the federal government should be a "reliable partner" in financing public works.

Water delivery and wastewater treatment systems account for a large share of these projected construction needs. Studies by the Environmental Protection Agency (EPA) and other groups estimate that nearly $200 billion must be spent on water delivery and wastewater treatment systems alone during the next fifteen years.

### Reduced Federal Funding

Two federal programs, the EPA Construction Grants Program and the FmHA Water & Waste Disposal Program, represent the federal government's major source of financing for the nation's low income rural communities' water and sewage treatment construction needs. An analysis of the federal budget reveals that the Reagan Administration's fiscal 1989 budget request for these two programs represents a staggering 54 percent reduction from Congressional appropriations for these same programs in fiscal 1980. Specifically, the reduction is from a figure of $4.4 billion in 1980 to the proposed 1989 total of $2.4 billion in the President's budget request for these programs. A breakdown of these figures follows:

| Program | FY 80 Funding | FY 88 Request | Decrease |
|---|---|---|---|
| FmHA Water/Waste | $990 million | $115 million | $775 million |
| EPA Construction Grants | $3.4 billion | $1.8 billion | $1.6 billion |
| TOTAL | $4.39 billion | $1.915 billion | $2.375 billion |

Obviously, the $440 million appropriated for this Farmers Home program in fiscal 1988 represents a 56 percent drop in funding since fiscal 1980. FmHA statistics also reveal that the total number of communities that received grants and/or loans during the last completed fiscal year, 1987, has been reduced significantly since 1980. In summary, we feel that funding for the program has already been pared to the bone if the program is to remain viable.

In addition to a reduced pool of federal funds for water and sewer projects, it is important to note that the federal tax reform proposal enacted by Congress in 1986 is likely to exacerbate the problem facing rural communities by further limiting their ability to finance construction work through local resources. Restrictions on the use of municipal development bonds and other provisions that are part of the tax package are expected to further hinder the opportunity for local communities to finance construction.

Perhaps the truest indicator of the continued need for this FmHA program is the number of preapplication and applications pending with the Farmers Home Administration. As of April 12, 1988, a total of 1,651 applications and preapplications for FmHA grants and/or loans totaling $1.053 billion were pending at Farmers Home headquarters. The number of pending applications and preapplications is slightly less than at this time last year (a total of 90 less), while the total dollar amount has risen some $52 million during this time.

NUCA has also obtained figures, which we submit for the record, that list a state-by-state breakdown of fiscal 1980 allotments and fiscal 1987 figures. You will note, Mr. Chairman, that North Dakota alone received 20 grants/loans totaling $5.8 million in fiscal 1980. Fiscal 1987 figures were reduced to 9 grants/loans totaling $1.85 million.

These figures clearly indicate that, despite the $440 million appropriated by Congress for fiscal 1988, rural communities still have an acute and urgent need for water and sewer system construction financing. The Farmers Home program is often the financing source of last resort for a number of poorer communities.

## Economic Growth & Public Health

Funding for this program must be viewed in budgetary terms not as a liability, but as a long-term asset because it represents an investment in the future economic growth of the nation's underdeveloped areas. A sound network of water delivery and sewage treatment facilities is essential to the economic growth of these rural areas. Businesses and industries place the condition of an area's sewer and water system near the top ot their list of criteria in determining whether to build, expand or relocate.

Perhaps the most alarming statistic estimates that nearly half of this nation's communities are unable to add businesses and residences onto their sewage treatment systems because they are already operating at "full" capacity. Many municipalities have been placed under court-ordered "sewer bans," which means they are unable to build new homes and businesses in their jurisdictions. It has been the experience of many of our member companies located in rural areas that vitally needed business that could provide an infusion of capital and employment into the local economy locate elsewhere due, at least in part, to inadequate water and sewer facilities.

Adequate funding for this FmHA program is also necessary to meet the needs of the public health. Due to inadequate funding to finance pipeline and treatment construction, many rural communities rely on septic tanks for sewage disposal and underground wells for water. Currently, tens of millions of Americans are without sewer service. In fact, the most recent EPA "Needs Survey" submitted to Congress in February of this year estimates that more than 12 percent of our population nationwide is served by sewage treatment systems that offer less than "secondary" treatment (a biological process used to remove water pollutants).

The alternative is largely the use of septic tanks. When operated and maintained properly by owners living on suitable soil, septic tanks can provide a cheap and efficient method of waste disposal. However, studies indicate that at any one time, 20 to 60 percent of the septic tanks in the United States are malfunctioning.

More importantly, malfunctioning tanks are a major source of both groundwater and surface water pollution. The National League of Cities, in previous testimony before Congress, noted that the use of septic tanks can lead to groundwater pollution, local and regional public health problems and contamination of water supplies.

## Water Pollution Control

Over the years, the FmHA Water & Waste Disposal Program has also proven to be an important source of financing wastewater treatment construction needs mandated by the federal Clean Water Act. Farmers Home officials report that a significant percentage of the program's funding is used to assist poor communities in financing the 45 percent local share required to receive an EPA grant under the EPA Construction Grants Program. Any reduction in FmHA funding would surely result in a slowdown in our nation's water pollution abatement effort.

It is also important to know that an increasing percentage of EPA sewer construction funding is now awarded to largely urban communities for treatment plant construction. Only a small percentage is now being used to construct sewer pipeline systems, such as collector pipelines. This policy penalizes small rural communities because pipeline costs represent 80 percent of the total project cost in small municipalities. In high density urban areas, however, pipeline construction accounts for only 15 to 20 percent of treatment system costs.

As a result, fewer EPA construction grants are going to rural communities. At the same time, however, EPA is stepping up its enforcement policy against all communities and is requiring them -- often by using court orders and other administrative powers -- to build the sewage treatment systems necessary to meet federal water quality standards. In essence, the agency is saying to communities, "You must construct these facilities. How you pay for them is your problem." The FmHA program is often the safety net for these communities with no other available source of construction financing.

## Conclusion

Mr. Chairman and members of the committee, I conclude by imploring you to appropriate an adequate amount of funding in fiscal 1989 for the Farmers Home Administration's Water & Waste Disposal program. A funding level of $440 million, equal to that of recent years, is certainly reasonable and responsible in light of the current need for this construction financing and the benefits derived from it.

Under the outstanding administration of the program by John Bowles, Acting Deputy Assistant Administrator for Community and Business Programs, and James Schwartz, Director of the Water and Waste Disposal Division, the program has efficiently and expeditiously made the grants and loans necessary to build these vitally-needed projects. The low loan delinquency rate of about 2 percent is just one indication of the effective administration of this program.

As any responsible business group, the National Utility Contractors Association supports a balanced federal budget. But given the figures cited earlier in my testimony, which indicated a proposed 54 percent reduction in federal funding for water supply and sewer construction programs, we feel strongly that the construction area of the federal budget has already done more than its share in reducing federal spending. Further reductions will not reduce the need for this financing, it will only postpone construction and result in even greater costs and higher prices in future years.

This program is important, it is efficient and, above all, it is working. I strongly urge you to continue your past support for adequate funding for this program in fiscal 1988 and beyond. Thank you for granting me the opportunity to appear before you here today, and my colleague, Mr. McDermitt, and I will be happy to answer any questions you may have at this time.

## HOUSING ASSISTANCE COUNCIL, INC.

### STATEMENT OF HAROLD WILSON, EXECUTIVE DIRECTOR

Senator **BURDICK**. Our next witness is Mr. Harold Wilson, executive director of the Housing Assistance Council.

Mr. **WILSON**. Thank you very much, Mr. Chairman, for the opportunity to appear before the Appropriations Committee once again, to speak to the appropriation for the Farmers Home Administration housing programs. We have prepared a statement, and I would like to request that our statement be included in the record, With that, I would really like to summarize three points out of my prepared statement, if I might.

Senator **BURDICK**. Your prepared statement will be made a part of the record, and we would be pleased to have you summarize.

Mr. **WILSON**. Thank you very much, Mr. Chairman. For the record, my name is Harold Wilson, and I am the executive director of the Housing Assistance Council, which is a national nonprofit housing seed loan fund and technical assistance organization. We have been working with nonprofit and public housing development groups around the United States for the last 17 years.

The points I would like to make, Mr. Chairman, are the following: First, we would like to urge the committee to continue the Farmers Home Administration housing programs at the fiscal year 1988 levels with the exception of section 533, the Preservation Grant Program, which we feel should be increased because of the expansion of their activity to a level of $30 million. The expansion of their activity is basically from that of home ownership to include work with rental housing units, as well.

There is a desperate need for production programs in rural America, Mr. Chairman. Twenty-six percent of the Nation's population live in rural communities, and yet have 33 percent of the substandard housing need and 38 percent of the Nation's poverty. As was indicated earlier, according to a Congressional Research Service study that was done, nonmetropolitan areas are falling behind in their production by about 75,000 units per year. The Farmers Home programs, we feel, have proven effective over the years, serving families at or near the poverty level. The 515 Program, for instance, serves an income level of around $8,000 dollars a year; the 502 Program, a home ownership program, around $12,700 a year.

In addition, as you are well aware, these are loans that are paid back, and with the recapture provision, the percentage of the subsidy that is provided in the 502 Program is also recaptured.

The National Housing Task Force report that was recently issued also looked at the Farmers Home Administration programs and calls for their continuation. So we would urge, Mr. Chairman, that these programs of the Farmers Home Administration be continued and that we not go to a voucher program, which brings me to the second point that I would like to make.

The vouchers that are called for by the administration's budget are simply not the answer to the housing need in rural America. Vouchers serve renters and not homeowners. Forty percent of the 4 million cost-burdened households in nonmetropolitan areas are homeowners, Mr. Chairman, and will not be served by the voucher program.

In addition, vouchers will not serve the 1.8 million rural households who live in inadequate housing; that is housing either without complete plumbing or that is overcrowded. The voucher proposal calls for only 8,600 vouchers for new families or additional families into the subsidized assistance level.

This level of assistance simply cannot replace the 57,000 units of new or rehabilitated housing estimated to have been created by the Farmers Home Administration programs in fiscal year 1988. It is a very poor trade, Mr. Chairman, in light of such significant need.

In addition, the voucher program will not serve migrant farmworkers or the Indian community adequately. Farmers Home, as you know, has a migrant labor housing program that is funded at a level of around $21 million a year. Because of the nature of the migrant farmworker community, vouchers will not be able to take the place of this program.

Finally, Mr. Chairman, since I see that the red light is on, I would like to encourage that the committee provide funding to implement the 1987 prepayment provisions by providing an additional appropriation of about $55 million to provide the equity payments for units that will be transferred, the 5,000 units, that will be transferred to the nonprofit community if, in fact, they come up for prepayment.

This $55 million would be used to offset a cost of approximately $165 million to replace these units if they are lost to the stock.

Thank you very much, Mr. Chairman, again, for the invitation to appear before the committee, and I will be happy to answer any questions that you might have or provide any additional information for the record that you might wish.

Senator **Burdick**. Thank you. If asset sales were prohibited, do you think that this would favorably affect the future loaning capabilities of FmHA?

Mr. **Wilson**. No, Mr. Chairman. I don't think that it would affect future lending activities of the agency. I think that if you look at the recent asset sale that was undertaken, we are willing to find that the Federal Government is going to lose a significant amount of money on that sale, because the loss that will be generated by the sale is going to have to be made up by some future appropriation. And when we begin to look at that future appropriation to make up the loss, on top of funding the program for the year that the loss comes up in, we are going to have a significant amount of money to come up with.

I think that the asset sale was a poor approach and that any additional sales, particularly because the best units have already been sold out of the program, will probably, in fact, lose even more money and is simply a bad deal for the Federal Government.

Senator **Burdick**. Generally, do you believe more rental construction and rehabilitation assistance should be provided or should more assistance be directed toward home ownership?

Mr. **Wilson**. Mr. Chairman, it is hard to ask me to choose between rental units and home ownership units in rural America. My personal view is that there is a tremendous need for rental units in rural America, accompanied by rental assistance.

But also, as you know, an overwhelming number of families in rural America are homeowners, and the preferred tenure in rural America is home ownership. I would encourage very much a balanced program for rural America, particularly a program that will allow those families who would like to move to a more urbanized center of small communities to move to rental units, but those families who want to remain in a homeowner situation to do that, as well. It is very difficult to choose between the two, because I think they are both cost-effective programs.

Senator BURDICK. Thank you very much.

Mr. WILSON. Thank you, Mr. Chairman.

[The statement follows:]

## STATEMENT OF HAROLD O. WILSON

Mr. Chairman, Members of the Committee, my name is Harold Wilson and I thank you very much for inviting the Housing Assistance Council to appear and testify on the Farmers Home Administration housing budget for 1989.

The Housing Assistance Council (HAC) is a national nonprofit corporation supporting the development of rural low and moderate income housing nationwide. For 16 years HAC has been providing technical housing services, seed money loans from a revolving fund, housing programs and policy analysis, training and information services to local public, nonprofit and private organizations involved in producing housing in rural and small town America.

This committee has demonstrated over the past years that it is aware both of the desperate need for low-income housing production programs in rural areas and of the programs in FmHA established to address those needs. With 26 percent of the U.S. population, rural areas and small communities that are remote from large metropolitan centers have a disproportionate burden of poverty and inadequate housing. Thirty three percent of the nation's substandard housing and 38 percent of the poverty level households living in substandard housing are in rural areas.

In the face of repeated attempts to end the rural housing programs, by substituting block grants or vouchers, this Committee and the Congress have continued to fund the essential rural housing production programs.

We urge you to continue to do so. We ask that you maintain the funding levels for the various FmHA rural housing programs at their 1988 levels, and provide a modest increase for the Housing Preservation Grant program. Additionally, we recommend that you look beyond FY 1989 to make plans to increase levels in the Section 502 and and 515 programs.

A 1986 report by the Congressional Research Service indicated that annual rural housing production and rehabilitation is 75,000 units less than need. Since then, FmHA production has lessened, thus making a bad situation worse. It is time to reverse shortsighted public policy and reinvest in the well being of Rural America.

### VOUCHERS

The Administration has proposed, again, ending the FmHA housing production programs and substituting for them 21,200 housing vouchers.

Vouchers -- comparable to rental assistance -- are a direct subsidy to tenants, who use them to pay for any housing they choose. In order for vouchers to be effective their market value must be sufficient and adequate housing stock must be available. However, in rural areas, there is a serious shortgage of suitable existing rental housing.

Cushing Dolbeare of the National Low Income Housing Coalition recently presented statistics to the Advisory Commission on Intergovernmental Relations showing that in 1970 there were four million people with annual incomes below $5,000 and 5 million housing units which those people could afford. In 1983, there were 5.5 million people with an income of $5,000 or lower, but only 3.5 million affordable units. We believe that 5 years later, in 1988, the shortfall is even worse. And rural areas have at least their "fair share" of that shortfall.

- Vouchers provide subsidy for renters, not homeowners. The number of low-income households living in nonmetro areas and considered by HUD to be cost-overburdened rose from 1,817,000 in 1975 to 2,984,000 in 1983. If the rate of increase from 1975-88 continued, there are in 1988 over 4 million nonmetro low-income households with severe housing affordability problems. Forty percent of those households are homeowners for whom vouchers provide no help at all.

- Vouchers involve no new construction or rehabilitation. They cannot replace an existing program that will produce, repair or rehabilitate an estimated 57,730 homes in FY 1988.

- Vouchers will serve fewer new families. Of the 21,200 vouchers offered in the proposed budget, 1,200 are reserved for displaced tenants, and 11,400 will be used to renew existing rental assistance commitments. Only 8,600 vouchers remain for new households.

- Vouchers are not a viable option for farmworkers, migrants or Indians, who do not have access to decent private market housing.

- Vouchers do not guarantee minimum standards, and the result could be subsidies for substandard housing.

Nor do we believe the rural voucher demonstration program authorized by the Housing and Community Development Act of 1987 should be funded from the Rural Housing Insurance Fund. The $130 million authorized for that demonstration would, if appropriated, reduce the Section 502 homeownership and Section 515 rental programs by a like amount. HUD is currently operating a voucher demonstration. FmHA should wait until the results of that demonstration are in before beginning another one.

We are not opposed to vouchers per se. When the safeguards of Section 8 certificates are included, and in areas with an adequate supply of modest rental units they may well be a useful adjunct to other housing programs. But they cannot, and must not be thought of as any kind of substitute for the building programs FmHA currently operates. To the extent funding is diverted from production into vouchers, those vouchers will add to the rural housing problem.

## ASSET SALES

The 1989 budget proposes the sale of $1.75 billion in the rural housing loan portfolio, from which FmHA expects to receive a net return of $986 million. HAC believes this expectation is optimistic.

During the FY 1987 portfolio sale, FmHA sold nondelinquent Section 502 loans with interest rates between 7.5 percent and 11.0 percent, and whose borrowers were not receiving subsidy. To date, the losses on those transactions are at least 26.5 percent and with overcollateralization, they could go as high as 41.2 percent. Subsequent sales will involve delinquent loans with lower interest rates and those currently receiving subsiOPdy - all negative factors in the private investment markets. The losses will be significantly greater.

If the rural housing portfolio were worthless, the sale would have more merit. However, this is not the case. Section 502 program losses have totalled only 2 percent of capital advances from 1950 through March 15, 1987.

Selling this portfolio for such a small fraction of its value is not cost effective. It will result in a loss of $764.75 million to be added to the loss on last year's sale of $635.6 million. (Administration figures). While some may argue that the sale reduces the budget deficit, this will only be a temporary measure. The Section 502 loans were made with borrowed money, and in two years Congress will have to appropriate money to the Rural housing Insurance Fund to cover its losses, thereby increasing the future deficit by a minimum of $1.4 billion.

We urge the Committee to put an end to the sale of FmHA assets.

## PRESERVATION GRANTS

The Rural Housing Preservation Grant program was authorized in 1983 and implemented in 1986 with a $20 million appropriation. Working through local groups and state or local governments, it has funded the rehabilitation of low and very low-income single-family housing. While the legislation authorizes rehabilitation of rental and limited equity cooperatives serving low and very low-income occupants, as well as single family housing, the Farmers Home Administration did not implement those provisions of the law. Last year's Housing Bill has directed FmHA to issue regulations on the rental portion of the act.

We urge this committee to increase the appropriation for Section 533 from the $19.1 million level of FY 1988 to at least $30 in FY 1989 so that FmHA can begin to implement the rural rental preservation program without reducing the ongoing commitment to the single family preservation program.

## FUNDING FOR DISPLACEMENT PREVENTION

The Housing and Community Development Act of 1987 provided a mechanism for retaining federally funded privately owned low- and very low-income rental housing projects available to the rural families for whom they were originally intended. Specifically, it directs the Secretary to make reasonable efforts to enter into an agreement with the borrower of a Section 515 project eligible for prepayment of the FmHA loan so that the borrower will continue to make the property available to low and very low-income tenants. Among the inducements the Secretary is able to offer the borrower is a supplemental loan permitting the borrower to recover up to 90 percent of his equity in the project. If the owner or the Secretary do not agree to a continuation of the property as a low-income project, the Secretary may require its sale to a non-profit or local government housing agency which will continue the low-income character of the housing. In either event - a subsequent loan to the borrower or a loan to the local government housing agency or nonprofit to purchase the owner's equity- additional funding will be required. The new law limits transfers to nonprofits of only 5,000 units in any fiscal year. HAC estimates the costs to be about $55 million. The loss of those 5,000 units through prepayment will ultimately entail an investment to replace them of about $165 million (in 1988 dollars). The $55 million appropriated now is a sound investment.

## A FINAL OBSERVATION

Finally, Mr. Chairman I hope you will permit an observation, from a housing perspective, on the Federal budgetary process. Regardless of the virtues and vices it may hold for other types of programs, the present unified cash budget acts as a powerful disincentive to the funding of essential housing programs.

Capital expenditures for housing constructed to last forty years and more, cannot fairly compete in tight budget periods with other programs whose value is consumed in twelve or twenty-four months, when the total cost is allocated to a single fiscal year. Housing vouchers funded for five years at $18,000 will always seem more attractive than a public housing unit costing $80,000.

When the Farmers Home Administration makes a homeownership loan of $50,000 it receives in return a real financial asset -- the note promising future repayment. That loan will be repaid over the next 33 years, generally with interest, yet that asset does not show up in the budget. We see only the $50,000 outlay.

The Comptroller General of the United States has submitted draft legislation to the Congress addressing this entire budgeting issue and GAO managers have testified before House Committees on a capital budget portion of the Comptroller General's draft. Without at all attempting to argue the case for any specific proposal, I do suggest that changes in the present budgetary system are needed. When this nation begins to sell off its capital assets in order to make payments on the national debt it is, to paraphrase GAO, selling the garage to meet the mortgage payment.

That concludes my statement, Mr. Chairman I'd be happy to answer any questions.

## U.S. Agriculture Export Development Council

### STATEMENT OF CHARLES OTTEM ON BEHALF OF THE U.S. AGRICULTURE EXPORT DEVELOPMENT COUNCIL

### ACCOMPANIED BY NELSON DENLINGER, U.S. WHEAT ASSOCIATES

Senator **Burdick**. Our next witness is Charles Ottem, Ofnabrock, ND, accompanied by Nelson Denlinger, U.S. Wheat Associates, and representing the U.S. Agriculture Export Development Council. Mr. Ottem, I think you ought to tell the world just where Ofnabrock is.

Mr. **Ottem**. Good morning, Mr. Chairman, Ofnabrock, ND, is up in the northeast corner of North Dakota in Cavalier County, a very proud section of North Dakota, a leader of several major commodities. It is a known producer of barley in North Dakota, which I, of course, have been actively involved with, and as you know, from years of experience with my family, barley has been a very important part of our family. That is how my involvement came with U.S. Feed Grains Council and why I am here to talk to you today about the cooperative programs.

Senator **Burdick**. I came into existence in that county.

Mr. **Ottem**. Oh, yes; I know that very well. Your home isn't very far from where I was born and raised.

Senator **Burdick**. It's a metropolis by the name of Munic. Proceed.

Mr. **Ottem**. Once again, my name is Charles Ottem. I am a small-grain farmer from Ofnabrock, ND, and immediate past president of the National Barley Growers Association. I am pleased to appear today on behalf of the Agricultural Export Development Council. I am going to summarize a written statement which I request to be printed in its entirety into this hearing.

Senator **Burdick**. The statement will be received.

Mr. **Ottem**. It is a pleasure to testify on a subject that is important to me as a farmer from North Dakota and the continued viability of all U.S. farmers nationwide. The 68 members of the Export Development Council participate in overseas market development programs administered by the Foreign Agricultural Service.

Most of them are nonprofit, producer or agribusiness organizations that are known as cooperators because they cooperate with FAS in building demand for U.S. products in markets all around the world.

After some very dark years in American agriculture, our exports have rebounded. Both the volume and value of overseas sales have increased, yet we still have a long way to go.

In fiscal year 1988, total U.S. agricultural exports are forecast at $32.5 billion, a 16-percent increase over fiscal year 1987, but well below fiscal year 1984's $38 billion.

The U.S. agricultural trade balance is in the black this fiscal year to the tune of $12 billion. That means the U.S. trade deficit, while still very high, is $12 billion less than it would have been without our agricultural industry.

There are a great many reasons for the export recovery, which vary by commodity. I believe that the Cooperative Market Development Program has been a significant factor in our recent sales growth. An important reason the cooperators have been able to build demand for American products is the strong support they have always received from this subcommittee.

The term "market development" gets tossed around a lot. All of us believe in it, but what does it really mean? Let me try to answer by giving an example of what the U.S. Feed Grains Council, a member of the Export Development Council, is doing to sell more barley abroad.

The U.S. Feed Grains Council initiated market development for malt, a value-added barley product. By demonstrating U.S. malt quality in foreign breweries, first-time-ever sales were made in markets previously controlled by the European Community suppliers.

U.S. malt sales to Honduras, Guatemala, Nigeria and the Philippines total 134,000 metric tons and utilized over 8 million bushels of barley.

As you know, Mr. Chairman, this is very important to us in North Dakota as we are the leader in producing malt and barley. Up until 5 years ago, there was hardly anybody in the world who knew exactly what U.S. barley quality was until we got involved in the actual export development market of barley and malt products through the U.S. Feed Grains Council. It is one of the success stories, and in the written testimony, there are other success stories of Export Development Council members.

One of the reasons market development works is that it is a long-term sustained partnership. That is one advantage of the cooperator program. It isn't temporary, and it isn't a quick-fix. It is designed for long-range export promotion programs that will establish solid U.S. market shares in foreign nations. Last year, the Export Development Council testified in favor of a $100 million appropriation for the Foreign Agriculture Service.

We believe that at least this amount is justified this year. The Foreign Agricultural Service personnel and other costs aren't headed in any direction but up, and this budget is already among the smallest of the USDA agencies.

One reason FAS needs more resources, in our view, is the continued decline in the dollar's value. The fall on the dollar has made it much more expensive to do business overseas. Most USDA agencies are not directly affected by currency fluctuations, but FAS definitely is, since much of its budget is spent outside the United States for market development and other functions.

Besides the Foreign Agriculture Service budget itself, USDA administrates several other important programs that are important for U.S. export strategy.

The Export Development Council members believe the funding levels for the Public Law 480, the GSM-102 and the GSM-103 programs, and the Targeted Export Assistance Program should all be adequately maintained.

Mr. Chairman, when it comes to promoting our agricultural products, the United States is still lagging behind many of our competitors. Yet U.S. export and sales volume is up; our market shares are up. To continue this recovery, the Export Development Council respectfully urges this subcommittee to make USDA's export programs a top priority. They are needed more than ever.

Thank you very much for allowing me to testify I also wish to thank this committee once again for the work we have received in the past and hope to continue to receive in the future. At this time, I would be happy to answer any questions that you might have for me or Mr. Nelson Denlinger.

Senator **Burdick**. Thank you very much. With respect to the various overseas market development examples you cite in your testimony, how many years after initial market entry do you estimate it will take before a product can sustain itself without further Federal export assistance?

Mr. **Denlinger**. That is a difficult question to answer, because in many cases, I think we face continuing competition over many years. I can cite for you the example of Japan, where we have been engaged there for many years, and I think the chance of increasing our market size in the case of wheat does not really exist.

But at the same time, if you were to pull your efforts away, your competition would begin to eat into the market share that you have built up. I cite as an example a few years ago, the Australians decided to pull their Australian National out of Tokyo, and it is very obvious that because of the costs, they might think of doing that. About 2 years later, they decided to put another person back again, so they wanted to avoid any loss.

I think you were probably thinking of the barley example, and I think you could tell in that case in a couple of years how your chances looked, whether you could sustain it with a reasonable effort.

Mr. **Ottem**. We also have other programs in the U.S. Feed Grains Council in countries where a market has been developed, but the continuation of nurturing that market and keeping it alive is always an ongoing program and one of much importance of maintaining a market once you have that market.

Senator **Burdick**. In other words, once you develop it and build it, you better keep an eye on it.

Mr. **Ottem**. There are too many stories of losing markets once they are developed, and we don't want to lose any more. We can't use it.

Senator **Burdick**. I agree with you. Thank you very much.

Mr. **Ottem**. Thank you.

[The statement follows:]

## STATEMENT OF CHARLES OTTEM

Mr. Chairman, my name is Charles Ottem. I am a farmer from Ofnabrock, North Dakota and I am the immediate past President of the National Barley Growers Association. Today, I'm appearing on behalf of the U.S. Agricultural Export Development Council. Our 68 members participate in overseas market development programs administered by the Foreign Agricultural Service. Most of them are non-profit, producer or agribusiness organizations that are known as "cooperators" because they cooperate with FAS in building demand for U.S. products in markets all around the world.

### The Export Recovery

After some very dark years in American agriculture, our exports have rebounded. Both the volume and the value of overseas sales have increased, in many cases dramatically. And yet we still have a long way to go -- our foreign sales remain lower than they once were.

- In fiscal 1988, total U.S. agricultural exports are forecast at $32.5 billion. That's a 16% increase in value over a year ago, and a rise of 24% over the low levels of 1985/1986 ... but it's still below the $38.0 billion of 1983/84.

- In the same fiscal year, the volume of exports are forecast at 142.5 million metric tons. Again, that's up: It's 10% above year-ago levels, and a 30% increase compared to 1985/86. It's still less than the 143.6 million metric tons shipped in 1983/84, however.

- Finally, the U.S. agricultural trade balance is in the black this fiscal year, to the tune of $12.0 billion. That means the U.S. trade deficit, while still very, very high, is $12 billion less than it would have been without our agricultural industry. And this agricultural trade surplus is 64% higher than it was a year ago, and 122% over its levels two years ago. Once again though, it hasn't yet regained the 1983/84 level of $19.1 billion.

So there's lots of work still to be done. There are still some big problems in American agriculture, and it's going to take all of us working together to solve them. But things are looking up.

There are a great many reasons for the export recovery, and they vary by commodity. I believe the cooperative market development program has been one factor in our recent sales growth, An important reason the cooperators have been able to build demand for American products is the strong support they've always received from this subcommittee.

### What is Market Development?

The term "market development" gets tossed around a lot. All of us believe in it, all of us support it. But what does it really mean? Let me try to answer by giving some examples of what USAEDC members are doing, right now, to sell more American agricultural goods in countries all over the world.

- Thanks to work by the Blue Diamond Growers of California, Japan in the 1986/87 crop year overtook West Germany as the top market for U.S. almonds. For instance, a Blue Diamond brand sardine and almond snack -- called "Calmond" -- created two to three million pounds of additional almond consumption, worth $5 million.

- Japan is also the scene for an intensive consumer campaign by the Potato Board. Newspaper and television ads promoted the superior quality of U.S. french fries, winning first prize for a newspaper ad campaign, as voted by readers. The result? Shipment of U.S. fries to Japan is up 73% from 1986.

- The Rice Council launched a major sales push in Portugal to make sure that Portuguese membership in the European Community didn't end U.S. sales there. A branded advertising program aimed at Portuguese consumers boosted sales and caused a major importer to switch from South American rice to high quality U.S. long grain rice. As a result U.S. sales to Portugal were increased by 7,000 metric tons.

- More Koreans are using soybean oil-based salad dressings now that the American Soybean Association has begun promoting salad bars in hotels and restaurants. Traditionally, Korean use of soybean oil was limited to frying and other hot uses. Now three different companies have begun producing the soy-based salad dressings. Due to this and related promotional activities soybean oil consumption has increased by 43% over the past four years.

- The wheat market in Senegal had long been dominated by the French. U.S. Wheat Associates overcame local bakers' reluctance to try American wheat by making flour samples available and demonstrating how the U.S. product made better French-style baguettes. New U.S. wheat has been sold to Senegal, and if current trends continue, the U.S. could dominate what has been a 140,000 metric ton French Market.

- The U.S. Feed Grains Council initiated market development for malt, a value-added barley product. By demonstrating U.S. malt quality in foreign breweries, first-time-ever sales were made in markets previously controlled by EC suppliers. U.S. malt sales to Honduras, Guatemala, Nigeria and the Philippines totalled 134,000 metric tons and utilized over 8 million bushels of barley.

This is market development: seeing a need ... creating a demand where none existed before ... getting there a little more quickly than the next guy, with a little better product, and good customer follow-up. On the surface, the results may not look dramatic, but add them up and what you have is more exports, a healthier trade balance and a more prosperous U.S. agricultural industry.

## A Continuing Partnership

One of the reasons market development works is that it's a long-term, sustained partnership.

The public sector is involved through FAS, and that doesn't just mean money. FAS's agricultural counselors and attaches in embassies around the world work closely with the cooperators -- market development is one of their jobs too. The cooperators, in turn, are also putting up their money, in most cases money that's contributed by farmers through voluntary checkoff programs.

This partnership has been going on since 1954 when the cooperator program was established. That's one of the most important advantages of the cooperator program. It represents a permanent program to fund basic market development and trade-servicing activities. The cooperator program isn't temporary and it isn't quick-fix. It's designed for long-range export promotion programs that will establish solid U.S. market shares in foreign nations.

Last year, USAEDC testified in favor of a $100 million appropriation for FAS. We believe that at least this amount is justified this year. The Foreign Agricultural Service's personnel and other costs aren't headed any direction but up, and its budget is already among the smallest of major USDA agencies.

One reason FAS needs more resources, in our view, is the continued decline in the dollar's value. A return to a more reasonably valued dollar is, of course, good for our export sales, and we welcome it. The flip side of a fall in the dollar, though, is that it becomes much more expensive to do business overseas. Most USDA agencies are not directly affected by currency fluctuations, but FAS definitely is, since much of its budget is spent outside the U.S. for market development and other functions.

Consider what's happened in Japan, the #1 U.S. market for farm products. As fiscal 1987 began, if you wanted to undertake a market development activity that would cost 1 million yen, you would have needed $6,235 to do it. As of mid-March 1988, undertaking that same million-yen project would cost $7,809 -a 25% increase. Our challenges around the world -- and our opportunities -- are as great as when the dollar was at its highs. But doing the same job now takes more dollars than it did then.

Other Opportunities

Besides the FAS budget itself, USDA administers several other programs that are important components in the U.S. export strategy. P.L. 480 programs not only feed the hungry but help Third World countries develop their economies and eventually pay proven dividends to U.S. agriculture, as aid recipients turn into cash customers. We believe the program level for 1989 should be at least as great as in 1988 ($852.0 million for Title I/III and $630.0 million for Title II), especially since use of the similar Section 416 aid program has been greatly curtailed.

Another valuable market promotion tool is USDA's export credit guarantee programs -- the short-term GSM-102 and the intermediate-term GSM-103. We believe the levels set out in the Food Security Act of 1985 -- $5 billion for GSM-102 and $1 billion for GSM-103 -- should be maintained, as should the Act's provisions for the Targeted Export Assistance program.

The Future

Mr. Chairman, when it comes to promoting our agricultural products, the United States is still lagging many of its competitors. In 1986, the U.S. spent 0.17% of the value of its exports on market development. By contrast, Canada spent 0.22%, Australia spent 0.99% and New Zealand spent 2.29%. Clearly, we could be doing more than we're doing.

Yet our efforts have been rewarded. U.S. export volumes are up; the value of our sales is up; our market share is up. There's good news in American agriculture today, and despite our continuing problems we musn't forget that. To continue this recovery -- to assure that the good news continues -- USAEDC respectfully urges this subcommittee to make USDA's export programs a top priority. They're needed now more than ever.

Thank you very much for allowing me to testify. I'd be happy to try to answer any questions you might have.

1.

HISTORICAL SUMMARY
VALUE OF U.S. FOREIGN TRADE AND TRADE BALANCE

FISCAL YEARS 1970 - 1987

| FISCAL YEAR | U.S. EXPORTS AGRICULTURAL | U.S. EXPORTS NON-AGRICULTURAL | U.S. EXPORTS TOTAL | U.S. EXPORTS % AGRICULTURAL OF TOTAL | U.S. IMPORTS AGRICULTURAL | U.S. IMPORTS NON-AGRICULTURAL | U.S. IMPORTS TOTAL | U.S. IMPORTS % AGRICULTURAL OF TOTAL | TRADE BALANCE AGRICULTURAL | TRADE BALANCE NON-AGRICULTURAL | TRADE BALANCE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Million Dollars | | | % | Million Dollars | | | % | Million Dollars | | |
| 1970 | 6,598 | 34,337 | 41,295 | 15 | 5,686 | 33,379 | 390,655 | 14 | +1,272 | +958 | +2,230 |
| 1971 | 7,955 | 35,928 | 43,883 | 18 | 6,128 | 38,744 | 44,872 | 13 | +1,827 | -2,816 | 989 |
| 1972 | 8,242 | 36,633 | 44,875 | 18 | 5,936 | 45,926 | 51,862 | 11 | +2,306 | -9,293 | -6,987 |
| 1973 | 14,984 | 47,759 | 62,743 | 23 | 7,737 | 57,521 | 65,258 | 11 | +7,247 | -9,672 | -2,515 |
| 1974 | 21,559 | 69,423 | 90,982 | 23 | 10,031 | 81,995 | 92,026 | 10 | +11,528 | -12,572 | -1,044 |
| 1975 | 21,817 | 83,178 | 104,995 | 20 | 9,435 | 89,251 | 98,686 | 9 | +12,382 | -6,073 | +6,309 |
| 1976 | 22,742 | 89,047 | 111,789 | 20 | 10,492 | 103,743 | 114,235 | 9 | +12,250 | -14,696 | -2,446 |
| 1977 | 23,974 | 95,144 | 119,118 | 20 | 13,357 | 129,061 | 142,418 | 9 | +10,617 | -33,917 | -23,300 |
| 1978 | 27,289 | 104,270 | 131,559 | 20 | 13,886 | 152,095 | 165,981 | 8 | +13,403 | -47,825 | -34,422 |
| 1979 | 31,979 | 135,639 | 167,618 | 19 | 16,186 | 177,424 | 193,610 | 8 | +15,793 | -41,785 | -25,992 |
| 1980 | 40,481 | 169,753 | 210,234 | 19 | 17,276 | 219,305 | 236,581 | 7 | +23,205 | -49,552 | -26,347 |
| 1981 | 43,788 | 185,415 | 229,203 | 19 | 17,218 | 237,469 | 254,687 | 6 | +26,570 | -52,054 | -25,484 |
| 1982 | 39,094 | 176,311 | 215,405 | 18 | 15,346 | 233,488 | 248,834 | 6 | +23,748 | -57,177 | -33,429 |
| 1983 | 34,769 | 159,373 | 194,142 | 17 | 16,271 | 229,438 | 245,709 | 6 | +18,498 | -70,065 | -51,567 |
| 1984 | 38,027 | 170,014 | 208,041 | 18 | 18,916 | 295,088 | 314,004 | 6 | +19,111 | -125,074 | -105,963 |
| 1985 | 31,201 | 179,236 | 210,437 | 14 | 19,740 | 313,722 | 333,463 | 5 | +11,461 | -134,486 | -123,025 |
| 1986 | 26,307 | 176,631 | 202,938 | 13 | 20,875 | 342,855 | 363,730 | 5 | +5,432 | -166,224 | -160,792 |
| 1987 | 27,874 | 199,947 | 227,821 | 12 | 20,643 | 367,381 | 388,024 | 5 | +7,231 | -167,434 | -160,203 |

Source: 1970-1985 USDA, ERS. FATUS November/December 1987.

2/19/88
(151UP pg 16)

# FISCAL YEAR EXPENDITURES OF FEDERAL FUNDS AND COOPERATOR CONTRIBUTION AND TOTAL AGRICULTURAL EXPORTS

| | (1) FEDERAL FUNDS | (2) | (3) | (4) | (5) | (6) FUNDS DISTRIBUTION | (7) | (8) MARKET DEVELOPMENT COSTS | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| FISCAL YEAR | PROJECTS | FAS | TOTAL | COOPERATOR FUNDS | TOTAL FUNDS | FEDERAL | COOPERATOR | AGRICULTURAL EXPORTS | FEDERAL | COOPERATATOR |
| | ----------------------- | $1,000 | ----------------------- | | | -----% of | Total------ | --$Million-- | ----% of | Export Value---- |
| 1971 | 8,847 | 858 | 13,705 | 18,613 | 32,315 | 42 | 58 | 7,955 | .11 | .23 |
| 1972 | 10,054 | 1,730 | 11,874 | 20,605 | 32,389 | 36 | 64 | 8,242 | .12 | .25 |
| 1973 | 10,045 | 930 | 10,975 | 22,112 | 33,087 | 33 | 67 | 14,984 | .07 | .15 |
| 1974 | 10,234 | 658 | 10,892 | 23,342 | 34,234 | 32 | 68 | 21,559 | .05 | .11 |
| *1975 | 11,739 | 830 | 12,659 | 26,997 | 39,566 | 32 | 68 | 21,817 | .05 | .12 |
| 1976 | 10,922 | 796 | 11,718 | 24,158 | 35,876 | 33 | 67 | 22,742 | .05 | .11 |
| 1977 | 11,719 | 798 | 12,517 | 29,420 | 41,937 | 30 | 70 | 23,974 | .05 | .12 |
| 1978 | 13,926 | 879 | 14,805 | 35,331 | 50,136 | 30 | 70 | 27,289 | .05 | .13 |
| 1979 | 16,709 | 963 | 17,672 | 39,660 | 57,332 | 30 | 70 | 31,979 | .05 | .12 |
| 1980 | 18,778 | 1,165 | 19,943 | 47,373 | 67,316 | 30 | 70 | 40,481 | .05 | .12 |
| 1981 | 20,195 | 1,014 | 21,209 | 51,502 | 72,711 | 29 | 71 | 43,788 | .05 | .12 |
| 1982 | 20,641 | 878 | 21,519 | 54,804 | 76,323 | 28 | 72 | 39,094 | .06 | .14 |
| 1983 | 23,373 | 869 | 24,242 | 65,849 | 90,091 | 27 | 73 | 34,769 | .07 | .19 |
| 1984 | 27,429 | 1,501 | 28,930 | 61,693 | 90,623 | 32 | 68 | 38,027 | .08 | .16 |
| 1985 | 31,073 | 1,088 | 32,161 | 72,839 | 105,000 | 31 | 69 | 31,201 | .10 | .23 |
| 1986 | 41,613 | 2,149 | 43,762 | 76,791 | 120,553 | 36 | 64 | 26,307 | .17 | .29 |
| 1987 | 29,629 | 2,357 | 31,986 | 52,737 (Est.) | 84,723 | 38 | 62 | 27874 | .11 | .19 |

* Cover 15 month period.

FOOTNOTES:

(1) FAS Expenditures for Cooperator Projects.
(2) FAS Expenditures for own projects.
(3) Column (1) + (2).
(4) Cooperator expenditures from own and related funds including foreign.
(5) Total expenditures for foreign market development.
(6) & (7) Share of total expenditures by source.
(8) Value of total U.S. exports of agricultural commodities.
(9) & (10) Market development costs as percent of value of total exports.

NOTE: If forest products are included, the agricultural exports for 1982 would total $41.9 billion, and the Federal and cooperator market development costs would be .05% and .13% respectively; 1983 would total $37.6 billion, and the Federal and cooperator market development costs would be .06% and .16%, respectively; 1984 would total $40.7 billion and the Federal and cooperator market development cost would be .07% and .15% respectively; 1985 would total $33.8 billion and the Federal and cooperator market development cost would be .10% and .18% respectively; 1986 would total $29.2 billion and the Federal and cooperator market development cost would be .15% and .26% respectively and 1987 would total $31.6 billion and the Federal and cooperator market development cost would be .09% and .26% respectively.

Source: FAS/MPS: 2/19/88
(1510P pg 15)

III.

## USDA AND COOPERATOR MARKET DEVELOPMENT EXPENDITURES EXPRESSED AS A PERCENTAGE OF TOTAL AGRICULTURAL EXPORTS

FISCAL YEARS 1971 - 1986

| FISCAL YEAR | EXPORTS ($ billions) | MARKET DEVELOPMENT 1/ ($ thousands) | PERCENT OF EXPORTS |
|---|---|---|---|
| 1971 | 8.0 | 20,569 | 0.26 |
| 1972 | 8.2 | 18,785 | 0.23 |
| 1973 | 15.0 | 18,536 | 0.12 |
| 1974 | 21.6 | 18,600 | 0.09 |
| 1975 | 21.8 | 212,656 | 0.10 |
| 1976 | 22.7 | 21,593 | 0.10 |
| 1977 | 24.0 | 25,069 | 0.10 |
| 1978 | 27.3 | 30,000 | 0.11 |
| 1979 | 32.0 | 33,935 | 0.11 |
| 1980 | 40.5 | 39,746 | 0.10 |
| 1981 | 43.8 | 42,344 | 0.10 |
| 1982 | 39.1 | 49,594 | 0.13 |
| 1983 | 34.8 | 54,448 | 0.16 |
| 1984 | 38.0 | 59,596 | 0.16 |
| 1985 | 31.2 | 67,800 | 0.22 |
| 1986 | 26.3 | 61,113 | 0.31 |
| 1987 (Estimate) | 27.9 | 58,673 | 0.21 |

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1/ Excludes Foreign Third Party Contributions.

SOURCE: FAS/MPS: 2/19/88
(1510P pg 14)

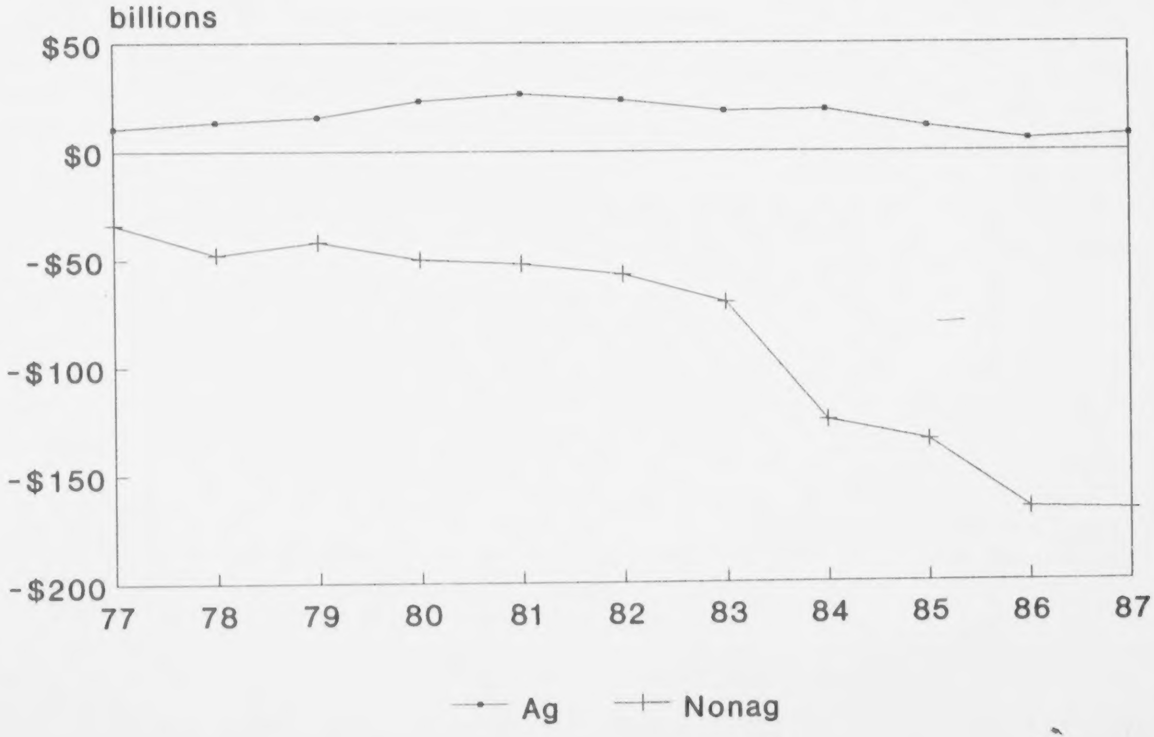
Agricultural Exports and Market Development Expenditures
of the United States and Its Principal Competing Countries

| COUNTRY | REVISED 1984 | | | REVISED 1985 | | | ESTIMATED 1986 | | |
|---|---|---|---|---|---|---|---|---|---|
| | EXPORTS (Billion) | MARKET DEVELOPMENT (Million) | PERCENT OF EXPORTS (Pct.) | EXPORTS (Billion) | MARKET DEVELOPMENT (Million) | PERCENT OF EXPORTS (Pct.) | EXPORTS (Billion) | MARKET DEVELOPMENT (Million) | PERCENT OF EXPORTS (Pct.) |
| Australia | US$ 9.17 | 79.33 | 0.86 | 7.92 | 67.30 | 0.85 | 7.23 | 71.62 | 0.99 |
| Canada | US$ 7.98 | 11.08 | 0.14 | 6.98 | 11.08 | 0.16 | 6.05 | 13.51 | 0.22 |
| Denmark | US$ 3.98 | 19.59 | 0.49 | 4.25 | 19.43 | 0.46 | 5.40 | 28.55 | 0.53 |
| France | US$ 16.65 | 25.65 | 0.15 | 17.21 | 32.08 | 0.19 | 21.13 | 28.90 | 0.14 |
| Israel | US$ 0.69 | N/A | N/A | 0.50 | 10.60 | 2.12 | 0.53 | 15.00 | 2.83 |
| Netherlands | US$ 15.18 | 34.60 | 0.23 | 15.39 | 33.11 | 0.22 | 18.11 | 44.59 | 0.25 |
| New Zealand | US$ 3.74 | 62.52 | 1.67 | 3.68 | 56.99 | 1.55 | 3.85 | 88.06 | 2.29 |
| South Africa | US$ 1.25 | 17.37 | 1.39 | 1.07 | 16.56 | 1.55 | N/A | N/A | N/A |
| TOTAL | 58.64 | 250.14 | 0.43 | 56.97 | 247.15 | 0.43 | 62.30 | 290.23 | 0.47 |
| UNITED STATES | 38.00 | 28.90 | 0.08 | 31.20 | 32.20 | 0.10 | 26.30 | 43.80 | 0.17 |

The above table compares and contrasts the United States with its eight major agricultural export competitors. Figures are presented for 1984, 1985,and 1986 showing the value of agricultural exports from each of the countries, the amount of funds each country spent on foreign market development, and what these funds represent as a percent of agricultural exports.

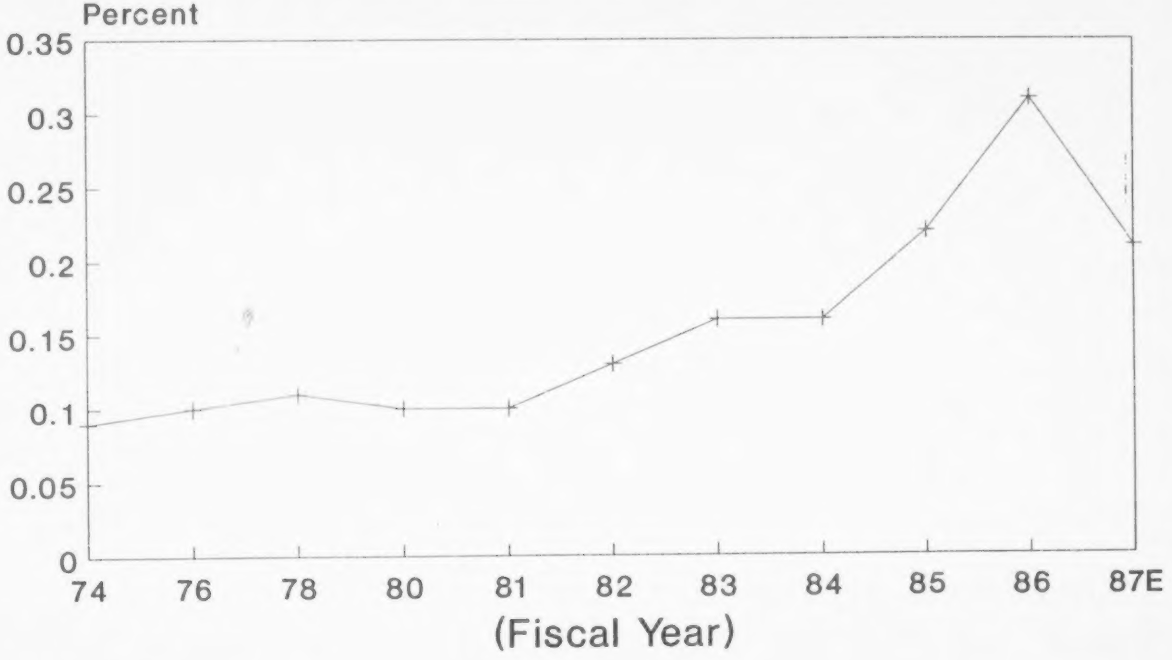
Four of our eight competitors showed increases in the value of their exports from 1984 to 1986, while the U.S. registered a 30% decline in the value of its agricultural exports. In 1986, the U.S ranked eighth out of the nine countries when government funds spent on foreign market development are expressed as a percent of the value of agricultural exports (using 1985 data for South Africa). By including in the 1986 market development figure the $110 million allocated to the Targeted Export Assistance program for that year, the U.S. figure for percent of exports will increase to 0.58% and an overall rank of fifth.

## AGRICULTURAL TRADE BALANCE IS POSITIVE ... WHILE NONAGRICULTURAL IS NEGATIVE



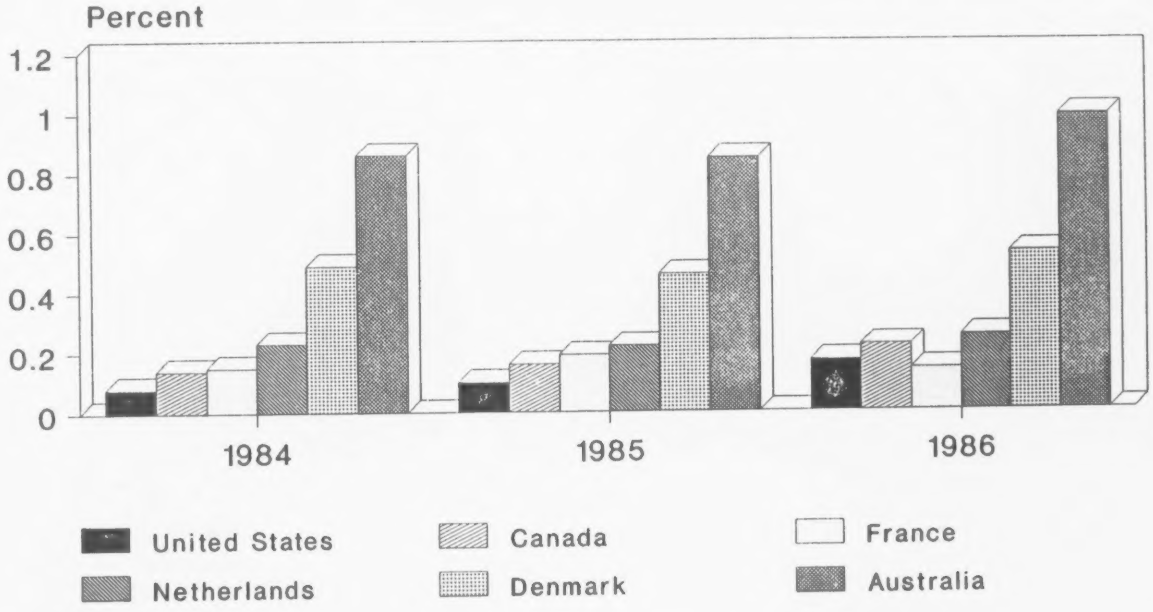
Source: USDA

## Cooperator and FAS Market Development Expenditures as a Percentage of U.S. Agricultural Exports



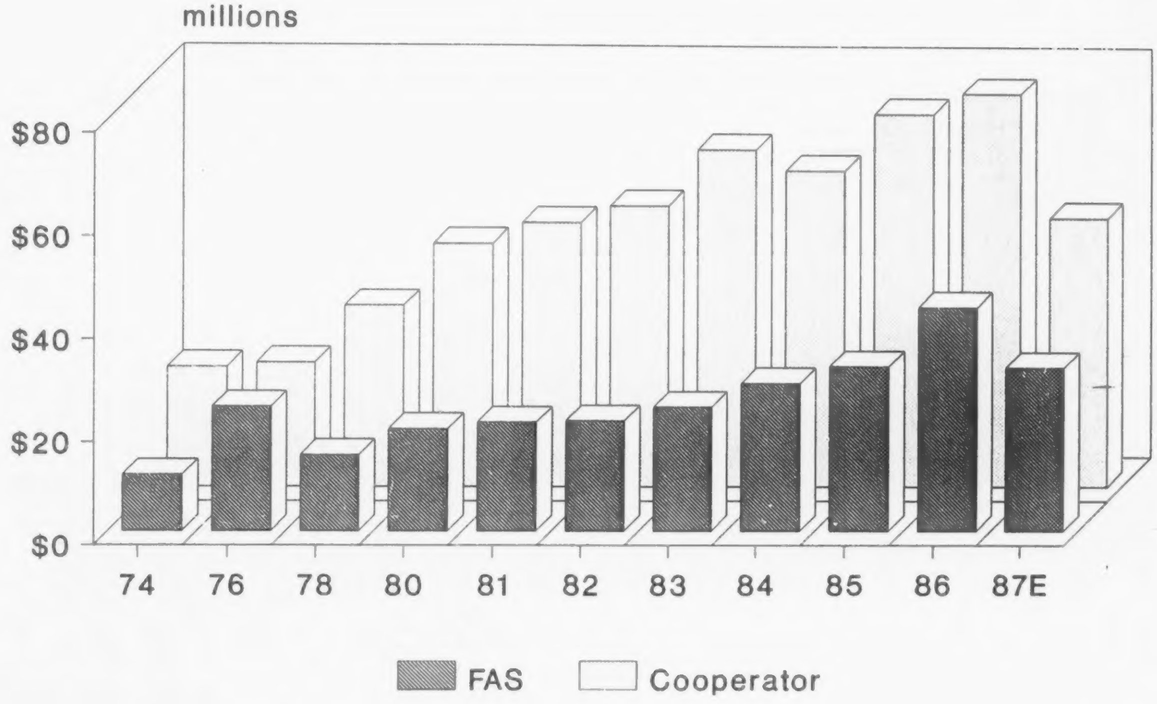
SOURCE: FAS

# Market Development Expenditures as a Percentage of Agricultural Exports U.S. and Competitors



Source: USDA

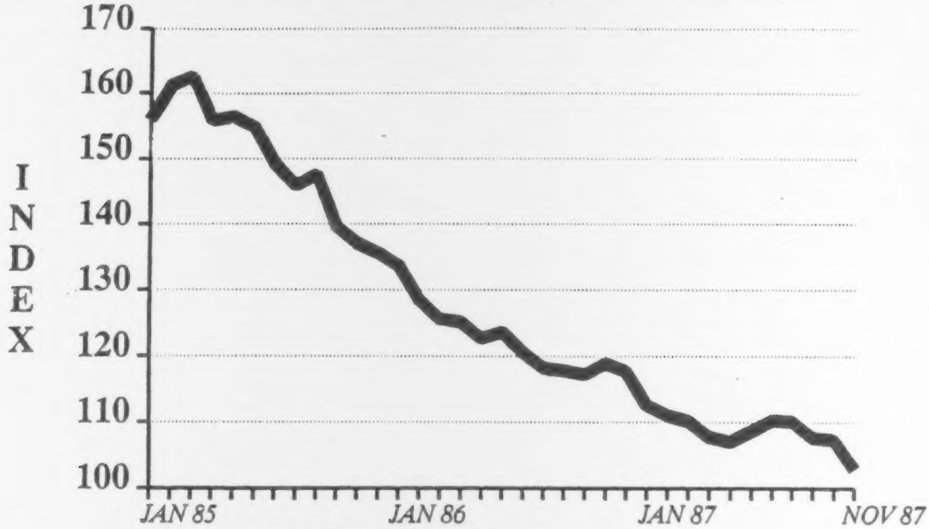
# U.S. Foreign Market Development Contributions



Source: FAS

## *UNITED STATES*

## MERM*: MONTHLY AVERAGES



* Multilateral trade-weighted index of U.S. dollar for 17 industrialized countries, 1980 = 100.

- The multilateral trade-weighted index (MERM) for 17 industrialized countries is a weighted exchange value of the U.S. Dollar against the currencies of the other 16 countries. This index, set up by the International Monetary Fund (IMF), provides an important barometer of the value of the U.S. Dollar against the currencies of its major trading partners.
- Since the peak of the Merm in early 1985 through November 1987, the U.S. Dollar has depreciated 37 percent. From January 1987 to November 1987, the U.S. Dollar fell 8.5 percent.
- The U.S. Dollar became more competitive vis-a-vis the currencies of 17 other industralized countries as the index declined. This situation has enhanced the marketability of U.S. exports given the fall in U.S. farm prices from earlier years.

Source: USDA/FAS/IAS/TEID

## COALITION FOR FOOD AID POLICY AND PROGRAMS

### STATEMENT OF CHARLES SYKES, ASSISTANT EXECUTIVE DIRECTOR OF CARE

Senator **BURDICK**. Our next witness is Charles Sykes, assistant director of CARE, Coalition for Food Aid. Welcome to the committee.

Mr. **SYKES**. Thank you, Mr. Chairman. We appreciate it. My name is Charles Sykes, I represent the Coalition on Food Aid Policies and Programs and serve as the assistant executive director of CARE and director of its Washington office.

Rather than all our nine members asking to be heard at the hearing, we have developed a statement and submitted it for the record to you with respect to the title II, Public Law 480 appropriations level, and, also, we have communicated our views on the fiscal year 1988 appropriations in a letter dated March 4 addressed to you as chairman and to all the members of the committee. If you have no objection, Mr. Chairman, we would like to have our statement and that letter received.

Senator **BURDICK**. It will be so received.

Mr. **SYKES**. Thank you very much. We would like, first of all, to thank you, Mr. Chairman, and the subcommittee for ensuring an adequate title to appropriations level for fiscal year 1988. This level was needed to meet the minimum title II tonnage requirement set by law, that is 1.9 million metric tons, and the required subminimum of 1.425 million metric tons be programmed by private voluntary organizations, cooperatives, and the World Food Program for nonemergency purposes.

Again, Mr. Chairman, we ask you to provide adequate funding and to maintain the level of $630 million for fiscal year 1989. If funding cuts are put in place, especially in light of the expected Afghan repatriation of refugees and the continued acute problems in sub-Sahara Africa and the chronic food shortages which continue in south Asia, we fear that the needs will not be met by the private voluntary organizations and cooperatives in meeting both humanitarian and development programs.

Unless the administration immediately informs and encourages aid missions to be supportive of well-planned and innovative monetization and other food-aid initiatives, other PVO's and cooperatives, our organizations will not be able to implement new or expanded programs this year. In fact, some coalition members have been told by AID missions that additional title II programs for fiscal year 1988 are not possible, even though Washington administration officials claim that nonemergencies subminimum tonnages and monetization targets cannot be met this year due to the lack of proposals from PVO's and cooperatives.

Be assured, Mr. Chairman, that these proposals do exist, and there is considerable need in the field. Thus, if the amendments to title II are implemented, PVO's and cooperatives would be better able to develop well-planned and integrated projects and carry out the objectives set forth in the law.

I would just like to conclude, Mr. Chairman, by saying that the ethical issue we face is: Why do we not devote ourselves more fully to finding ingenious methods for removing these obstacles that currently exist in meeting the objectives of the title II, Public Law 480 law? I would like to conclude my statement by thanking you again, Mr. Chairman and members of the committee, for the opportunity to present the coalition's views to the subcommittee. We urge you to continue the support of the Public Law 480, Title II program by at least maintaining the current funding level of $630 million for fiscal year 1989.

Senator BURDICK. Thank you. Do you believe that title II nonemergency commodities should be approved on the basis of food assistance as a first priority, and economic assistance as a second priority or vice versa?

Mr. SYKES. Well, the minimum tonnage of 1.9 million metric tons is subdivided currently. Of the 1.9 million metric tons, 1.425 million metric tons is set aside for nonemergency programs, with the balance remaining to meet emergency needs and government-to-government programs under section 206.

So there is a clear division now, Mr. Chairman, with respect to the tonnage to be met. Our main point is that in order to meet these tonnage levels established by law, we feel that the appropriations level established by the committee is an appropriate one for 1988 and that we ask you to consider a level similar to it for fiscal year 1989.

Senator BURDICK. The question did not ask between emergency and nonemergency. The question was based on whether the money should be allocated to food assistance rather than economic assistance or vice versa.

Mr. SYKES. The categories covered under title II cover both economic development and emergency types of programs, so both types of programs are covered under the law currently. With respect to priorities based on limitation in the appropriations, the humanitarian objectives and needs set forth clearly have priority.

The recent legislation has expanded the definition clearly to allow U.S. PVO's and cooperatives to expand their efforts into meeting those economic development objectives such as cooperative development and agricultural activities, which enable us to use the food in economic development purposes. I am not sure if I have answered specifically.

Senator BURDICK. What you are telling me is that you think they should be used for both purposes?

Mr. SYKES. Exactly. I think the U.S. public, I think the U.S. Congress has come to depend on the private voluntary organizations and the cooperatives as the organizations in the frontline, in Ethiopia, Mozambique, India, and other places carrying out these programs, to use the commodities both for emergency and economic development purposes.

Clearly, if there is a time of disaster, emergency or famine, the priority has been given to the emergency;, in other words, a life-threatening situation as opposed to the economic, longer term economic development activities. Does that more precisely answer the question, Mr. Chairman?

Senator BURDICK. That is quite satisfactory. Thank you.

Mr. SYKES. Thank you very much.

[The statement follows:]

## STATEMENT OF CHARLES SYKES

Mr. Chairman, my name is Charles Sykes and I am co-Chairman of the Coalition for Food Aid Policy and Programs ("Coalition"), which represents the major U.S. private voluntary organizations ("PVOs") and cooperatives using Title II, P.L. 480 donated food commodities for humanitarian relief and development purposes (Adventist Development and Relief Agency, CARE, Catholic Relief Services, the Council for International Development, Land O'Lakes, the National Cooperative Business Association, Save the Children, SHARE, and World Vision Relief Organization). I currently serve as Assistant Executive Director of CARE and Director of its Washington Liaison Office.

On behalf of the Coalition, I would like to thank you, Mr. Chairman, and the Subcommittee for ensuring an adequate Title II appropriations level for FY 1988. This level was needed to meet minimum tonnage requirement set by law (at least 1.9 million metric tons) and the required subminimum (at least 1.425 million metric tons to be used by PVOs, cooperatives, and the World Food Program for non-emergency programs).

Again, we ask you to provide adequate funding not only to meet acute emergency needs in parts of sub-Sahara Africa and the chronic malnutrition still persisting in South Asia, but also to promote self-sustaining economic development programs in many developing countries. We therefore ask that you maintain the current Title II funding level, $630 million, for FY 1989. If funding is cut, we are concerned that it will not be possible to meet both emergency needs and continue our well-planned and constructive development food aid initiatives.

Our organizations believe feeding the hungry and meeting emergency needs is a most important function of the food aid program. However, our experiences overseas indicate that to help people progress from perpetual poverty and hunger to self-supporting enterprises, more is needed. Through innovation and experience, we have found ways to integrate food aid with health, nutrition, infrastructure building, educational, agricultural, cooperative, and small enterprise development efforts. We wish to continue and to expand these types of programs, which the law specifically requires. To do so, it is important that Title II funding levels be maintained.

### Food Aid Programs--Lessons Learned

In the late 1970's, some polemicists raised serious doubts about the usefulness of food aid as an effective development resource; questioning its usefulness in other than emergency or life threatening situations. Since then, well-documented field evaluations have shown the effectiveness of development-oriented food aid strategies. I would like to review some of the lessons we have learned during the last decade with respect to the utility of food aid as a development resource.

1. Meals served at poor rural schools in LDCs have a significant positive impact on student enrollment, attendance, and retention, particularly among girls, which has a multiplier effect. As a woman's educational level improves, this benefits her and her family's nutrition, health, agricultural production, and fertility.

2. Well-designed food-for-work projects have a direct positive impact on rural employment, income, and consumption levels while the projects themselves, such as the construction of village to market roads, irrigation canals, and grain storage

facilities, create new and lasting jobs which strengthen the rural agricultural economy. Food-for-work programs are also successful in urban slum improvements, helping protect low-income urban dwellers from rapid basic commodity price increases during periods of structural and sectoral adjustments and also markedly improving living conditions.

3. Food and nutrition security, including safe drinking water, are the most important aspects of any national and global security system and food aid helps promote food security.

4. Women play critical roles in the success of food aid supported projects, as organizers, preparers, teachers, health promoters, and workers, for instance when trained as assistants in mother-child health care programs.

5. Food aid can very positively contribute to macro-food security and basic commodity price stability without having any disincentive effect on local production.

6. The more carefully designed and purposeful projects of PVOs and cooperatives are much more likely to reach vulnerable and economically disadvantaged groups and to have long-term benefits in developing countries than government-to-government food aid programs. Also, when monetization, or the sale of some or all of the donated commodities, is used by PVOs or cooperatives, the funds can be successfully channeled into development programs targeting vulnerable groups.

7. Non-emergency food aid is far more effective when fully integrated into projects which have significant capital budgets and objectives other than simply consumption.

Thus, the most important lesson we have learned in the 1980's is that food aid works best as a component of a well-defined development project--not in isolation from other inputs --and when local currencies generated from commodity sales are used to implement such projects.

## Descriptions of Food Aid Programs

**Education and Cognitive Development Programs:** With the objective of improving the value and potential of human capital, when food is integrated into programs that have literacy, education, and training, with their very high but deferred rate of return, as major components.

**Infrastructural Improvement Programs:** Food aid can substantially reduce the capital costs and provide incomes for people who participate in major development activities, such as upgrading and maintaining roads, constructing minor irrigation and storage systems, reforesting and caring for fragile soils, land reclamation, and drainage and waste disposal in urban slums.

**Child Survival:** Food aid, as one component of an integrated mother-child health care program, for instance including growth monitoring, oral rehydration, breast-feeding, and immunization ("GOBI"), can help a child realize his/her full genetic potential.

**Income-generating, Community, Cooperative, and Agricultural Development Programs Supported by Monetization:** In addition to adding to the net availability of basic food commodities in food deficit countries, proceeds from sales of commodities are targeted to well-defined economic development programs.

**Emergency Food Aid Programs:** Our experience in emergency programs during the 1980's demonstrates that a significant part of food aid can be focused on reducing the negative impact of drought and famine upon ongoing development projects--insulating them from complete disruption. The lessons learned by UNICEF, PVOs, WFP, and AID from triangular food aid purchases, regional transfers, and local purchases have served to efficiently stimulate and transfer production in areas of agricultural surplus to areas of scarcity. However, it is incumbent upon developed nations to help provide needed commodities and support for transportation and distribution under emergency conditions.

Legislative Changes and Implementation Issues

Over the past several years, particularly in the Food Security Act of 1985 and the FY 1988 Appropriations Continuing Resolution, the Congress has approved legislation to improve the policy framework for food aid programming. The Coalition supported these amendments since we have been concerned about the inflexible and complicated food aid program guidelines and approval process that seemed to impose unnecessary roadblocks to PVOs and cooperatives wishing to submit food aid proposals.

For instance, the FY 1988 Continuing Resolution required the Administration to allow PVOs, cooperatives, and other interested parties to review and to comment on proposed food aid guidelines. Since previous guidance has discouraged the development of innovative food aid programs and lacked flexibility, hopefully this provision will help us to work with Administration officials to devise more encouraging and useful guidance focusing on "how to" and not on "why not to" implement good programs.

Also, the recently-enacted legislation states that once a PVO or cooperative project proposal is approved by an AID mission and sent to Washington for final approval by 4 or 5 different government agencies, a decision must be made within 45 days. In the past, proposals have lingered at these agencies for months, even over a year, with little if any progress or constructive feedback, making it very difficult for a PVO or cooperative to plan and to arrange for program implementation. Another provision of the law which we hope to see implemented is multi-year programming (subject to commodity availability and appropriations), allowing our organizations to make long-term commitments to meet chronic malnutrition and economic development needs.

The Congress has also clarified that proceeds from commodity sales can be used by PVOs and cooperatives to implement a wide-range of development activities, which we believe will improve the effectiveness of food aid as a development tool. However, many AID field personnel are not yet aware of this and other changes in the law and we are already in the third quarter of FY 1988.

Unless the Administration immediately informs and encourages AID missions to be supportive of well-planned and innovative monetization and other food aid initiatives of PVOs and cooperatives, our organizations will not be able to implement new or expanded programs this fiscal year. In fact, some Coalition members have been told by AID missions that additional Title II programming for FY 1988 is not possible, even though in Washington Administration officials claim that non-emergency subminimum tonnage and monetization targets cannot be met this year due to a lack of proposals from PVOs and cooperatives.

Thus, if the amendments to Title II are implemented, PVOs and cooperatives would be better able to develop well-planned integrated projects. Recently, at the October 1987 Colloquim on Food, Science and Ethics sponsored by the Smithsonian Institute, the issue of food aid utility in developing countries was discussed. The world's pre-eminent development scholars, scientists, and practitioners contributed to the debate and it was concluded that resources and expertise exist to redistribute food and technology in the world. The unique example of India, which used massive food aid to ameliorate short-term problems of food security and famine while establishing the institutional infrastructure to ensure agricultural growth was referred to as a striking example of what could be replicated in other countries. Although there are obstacles to overcome, such as the unique problems of sub-Sahara Africa, as one of the Colloquim participants pointed out, "The ethical issue we must face is: Why do we not devote ourselves more fully to finding ingenious means for removing these obstacles?"

Thank you, Mr. Chairman, for this opportunity to present the Coalition's views before the Subcommittee. We urge you to continue to support the P.L. 480 Title II program by at least maintaining the current funding level of $630 million.

## RURAL FAMILY ISSUES COALITION

### STATEMENT OF ROGER W. HANNAN, CHAIRMAN

Senator **BURDICK**. Mr. John Ingle, director, Advanced Research Division, AGRI-Genetics Corp., Midwest Plant Biotechnology Consortium. Is Mr. John Ingle present?

[No response.]

Roger W. Hannan, chairman, Rural Family Issues Coalition. Mr. Hannan?

Mr. **HANNAN**. Thank you, Mr. Chairman, for this opportunity to present this testimony. I have submitted written testimony. I would like to have it included as part of the record.

Senator **BURDICK**. It will be received in full.

Mr. **HANNAN**. My name is Roger W. Hannan. I am from Grand Chain, IL. I am speaking on behalf of the Rural Family Issues Coalition. Twenty-two States are represented in this coalition. The mission of the coalition is to gain congressional authorization and appropriation to develop and carry out clinical outreach stress counseling programs for farm families, in particular, and rural families in general.

To this end, the Rural Family Issues Coalition is seeking $12.5 million appropriation for the Rural Crisis Recovery Act of 1987. We are also seeking the intent of Congress that all States be eligible to participate and that clinical outreach counseling receive priority consideration under this legislation.

I am codirector of a program in Illinois that I would like to hold up as an example of how effective and important outreach can be. In Illinois, we went outside the traditional delivery system to provide stress counseling and crisis care for farmers and farm families. This program utilizes a statewide toll-free number and geographically distributed outreach counselors who are professional mental health workers with farm backgrounds.

They operate from their cars and their briefcases, for they were not provided office space. Through a system of phone beepers, they were connected to the crisis line. Funding is provided through the

Illinois Department of Agriculture. During the first two years of the program, over 6,000 farm family members were served and 4,600 crisis calls were handled on the hotline. Sixty-nine percent of these crisis calls resulted in a face-to-face intervention.

This program has shown that clinical outreach works in reaching a hard-to-reach population. Only 9 percent of those served had received any previous mental health or social service care.

I would like to close with a brief story that reflects the value of clinical outreach to farm families. Our program in Illinois has been caught in a budget crunch, like many other programs, which forced us to temporarily lay off the outreach workers at the end of January.

Two weeks ago, a farmer went looking for the outreach worker who had previously served his community. His neighbor had gone off the deep end and was threatening his son and himself with a gun while refusing to speak with anyone and, in particular, anyone from mental health. His neighbor didn't know the outreach counselor's name or exactly where she lived but felt that she was their only hope at that point. They were finally able to find her that Sunday morning, and she made a successful intervention. The father, the son, and other family members are now involved in counseling at the previously taboo mental health center.

Outreach, in my judgment, made the difference. Thank you.

Senator BURDICK. Thank you. Do you believe the redirection of Extension Service objectives on community health and well being and developing human capital coincide with the outreach and counseling programs you are advocating?

Mr. HANNAN. Yes.

Senator BURDICK. You do? Thank you.

[The statement follows:]

## STATEMENT OF ROGER W. HANNAN

### SUMMARY

Twenty-two states are represented in the Rural Family Issues Coalition. These individuals come from a broad spectrum of professionals including farming, Mental Health, Universities, State Agriculture Departments, State Governor's Office, Extension, Farm Bureau, Ministry, Crisis Programs, Research, and Social Work. The mission of the Rural Family Issues Coalition is to gain congressional authorization and appropriation to develop and carry out clinical outreach stress counseling programs for farm families in particular and rural families in general. To this end, the Rural Family Issues Coalition is seeking 12.5 million dollars appropriation for the Rural Crisis Recovery Act of 1987. We are also seeking the intent of Congress to be that; all states be eligible to participate, and clinical outreach counsling receive priority consideration.

### TESTIMONY

The debate continues as to whether the farm crisis is over. Clearly, for most farm families who had little or no farm debt and who produce livestock, 1987 was a very profitable year. However, other farm families continued to be liquidated. Given that a major percentage of farm income comes from government programs and given that the political interest in reducing these programs for budgetary reasons remain high, the economic conditions in the foreseeable future are not overly optimistic. A recent report by the Food and Agriculture Policy Research Institute reports that "in real terms, net farm income is projected to fall by more than 45% between 1987 and 1996."

The economic problems faced by rural communities are not just the result of economic conditions in farming. Rural economic problems result from depressed economic conditions in rural manufacturing, energy and mining, forestry and fishing.

The rural crisis should not be described only in economic terms. Even if it were possible to reverse the economic problems in rural areas immediately, serious social and psychological problems would remain which must be addressed if we are able to restore the quality of life in rural America.

The mental health of rural America is deteriorating and with it the social organization which allows rural communities to adjust to changes in a positive manner. Data collected from the Iowa State Cooperative Extension Rural Concern Hotline for 1985, 1986, and 1987 indicated that the percentage of calls for assistance in financial and legal issues has remained relatively constant, while the percentages of calls seeking emotional and stress assistance went from 20% in 1985 to 49% in 1987.

A recent study compares the mental health of Nebraska residents between the years 1981 and 1986. This study documents a major deterioration for rural families. Rural families in Nebraska went from having among the lowest rates of psychological distress in 1981, to among the highest in 1986. Rural residents showed a major increase in depression and psychological dysfunctioning. Although families who experienced serious economic problems experienced the major increase in depression and dysfunctioning, many rural families who remained constant or improved their economic conditions also showed symptoms of increased depression and psychological dysfunction.
Simply living in a rural community in which many families were experiencing mental health problems lead others to experience similar conditions. This is largely the result of the fact that

depression is contagious. It moves from family member to family member, and then out into the community.

Many rural communities are now facing collective depression. While individual depression is characterized by such symptoms as withdrawing from others, the inability to think rationally and logically and increased physical aggressiveness, collective depression is characterized by the community showing a sense of hopelessness and helplessness. Prevalent in many rural communities today is a sense that the community has no real control over its destiny; thus, the community has given up.

A community study done in 1985 in Missouri revealed that many rural communities in the northern part of the state (the part of the state hit hardest by the severe economic problems in agriculture) had little will to plan and/or prepare for the future. Rural development and/or revitalization is dependent on considerable local initiative. This essential ingredient is lost when the community experiences collective depression.

Several studies done in recent years have indicated an increase in the need for rural mental health. In early 1985, a study done in Missouri of families who had been forced from farming for financial reasons revealed that all of the women and but one of the men indicated that they experienced depression which was characterized by high levels of withdrawal from social activities, increased drug usage and the inability to think rationally and logically.

Also in 1985, a study in North Carolina of 3,921 adults found significantly higher rates of alcohol abuse and/or dependence on alcohol and cognitive deficit problems in rural areas than in urban areas.

During the past three or four years, a series of studies focusing on rural youth in Minnesota has shown extremely high levels of mental health problems. In one study of 2,200 adolescents, three out of every 100 had attempted suicide in the previous month compared with the national average of 2 out of every 1,000. Eighteen percent of the adolescents were evaluated to be moderately or severely depressed which is more than double the percentage of adolescents reported in a similar study in suburban New York.

In the past year, the National Mental Health Association established the National Action Commission on the Mental Health of Rural Americans. This commission held hearings in Des Moines, Iowa, and Nashville, Tennessee, to document the prevalence of psychological and emotional problems experienced by rural Americans as highly stressful events continue to impact this area. The Commission further sought to assess the extent to which the current delivery of mental health services in rural America is adequate to meet these needs and whether or not the system needs to be altered. The final report of the Commission is due to be released later this spring.

A study of 50 community mental health centers in the Midwest found that the centers experienced a moderate to very large increase in the number of their clients. Some of the administrators reported that 50% of their clients were people suffering from problems related to the agricultural economy. A similar study of mental health centers in Colorado indicated a similar problem. They found that child abuse, spouse abuse, adolescent depression, alcohol abuse, depression and anxiety disorders had increased much more rapidly in rural communities than in urban communities.

The RURAL FAMILY ISSUES COALITION with membership from 22 farm states, believes that the current mental health system in rural America is unable to provide the necessary services for several reasons. First of all, the system simply lacks the necessary resources to cope with the tremendous increase in the need for rural mental health services generated in the last few years. Secondly, there is major stigma against the mental health areas. Individuals and families are very reluctant to seek mental health assistance because it is frequently associated with being mentally ill. Thirdly, one of the major characteristics of depression is withdrawal. Individuals and families do not reach out for assistance when they are experiencing depression. The tendency is to withdraw and take out the pent up anger on family members and/or the self.

Thus, a major need exists to develop a mental health outreach program just at the time when mental health centers are unable to meet the increased need for their traditional clinical services. Programs must be developed which reach out into the community to find the families who are in need of assistance.

Illinois has developed such a program effort which is unique in several respects. One, it provides statewide toll-free number answered by mental health professionals. Two, it utilizes professional counselors with farm backgrounds as outreach workers. These workers do not have offices, they operate out of their cars and their briefcases. Thirdly, these two components - the toll-free number and the outreach are joined together through a network of beepers allowing very rapid intervention often within the first hour. During the first two years of service, over 6,000 farm family members were served, and 4,600 calls were handled on the hotline. The Illinois Program has demonstrated unequivocally the appropriateness of aggressive outreach in dealing with emotional stress factors found within many farm families today. This was borne out in two studies done by the Farm Resource Center on the Illinois Program. In both studies, less than 10% of the total client load had been served by any other human service agency. Traditionally, the rural and farm family population have demonstrated coping patterns that are dramatically different from that of their urban counterpart. The factors of pride and independence have long been issues that prevented farm families from accessing human service programming. However, the Illinois Program demonstrated that when approached in an outreach format, the willingness of farm family members to utilize counseling/crisis intervention services was dramatically improved. The Illinois Program provides the kind of data that documents the importance of the continuation and the expansion of outreach activities in dealing with the emotional stress confronting many rural families today. The Farm Resource Center did another study on the Illinois Program. First in 1986, and again in 1988, that dealt with the perceptions of people in the rural community that worked most closely with farmers and farm families. In February, 1986, when the survey was first conducted, respondents were asked to rate how much the community was being affected by the rural crisis on a scale of 0-9, the survey responded at an elevated 5.88. In January, 1988, the response was even higher at 5.89. This kind of response indicates a major concern by those responding. When the same respondents were asked how much this crisis had caused an increase in emotional stress for farm families, the response was 5.53 in 1986, and 5.78 in 1988. When asked if their own stress levels had increased with the rural crisis, the response from 1986 to 1988 was also elevated, 4.57 in 1986, to 4.95 in 1988. In the second survey, ministers and extension agents showed the highest concern for the rural crisis. Agribusiness and governmental agencies respondents showed the most concern about their own personal stress as a result of the crisis. Another finding in the survey that was remarkable was the immergence of the Farm Stress Program in capturing the attention of farm related entities. In 1986, survey respondents listed ministers as the first resource thought of when they were faced with a farm family member experiencing severe emotional stress. In the follow-up survey, the Farm Resource Center Stress: Country-Style Program, with its aggressive outreach component was picked fully one-third more often than ministers or other community based counseling services.

Previously, 3.35 million dollars was approved to fund demonstration projects in 8 states under Section 1440 of the Food Security Act of 1985. However, during 1987, the Rural Family Issues Coalition worked closely with the House Committee on Agriculture and the Senate Agriculture Committee to add essential components to the provisions of this legislation through HR3492. The result of this was the Rural Crisis Recovery Program Act of 1987. These components include:

1. Mandatory provision of clinical outreach stress counseling programs.

2. Appropriate state governmental agencies and not-for-profit corporations be eligible to be contracted with to deliver these services.

3. Each state will develop a comprehensive state plan for the use of the funding under the provisions of this legislation.

4. Finally, that the programs within this legislation will be expanded to include all rural people.

To accomplish this end, the Rural Family Issues Coalition is requesting that the program now be made available to all states, and that the appropriation be increased to reflect the increased need. Assuming that about half of the states would request such programs assistance in 1989, we would request the appropriation be increased to 12.5 million dollars. Thank you for your attention.

## Leather Industries of America

### STATEMENT OF CHARLES MEYERS, PRESIDENT

### ACCOMPANIED BY JEROME J. BREITER, PRESIDENT, U.S. HIDE, SKIN & LEATHER ASSOCIATION

Senator **Burdick**. Our next witness is Charles Meyers, president, Leather Industries of America, and Jerome Brieter, president of the U.S. Hide, Skin & Leather Association.

Mr. **Breiter**. Good morning, Mr. Chairman. We have submitted a written statement which we would like to have included in the record, and I have a brief oral statement to make.

Senator **Burdick**. It will be included in full.

Mr. **Breiter**. For the record, my name is Jerome Breiter. I am the president of the U.S. Hide, Skin & Leather Association. With me this morning is Mr. Charles Meyers, president of the Leather Industries of America.

We are appearing before this committee on behalf of the Agricultural Research Service and its Eastern Regional Research Center in an effort to secure an increased level of funding for research on hides and leather.

In our written testimony, we have outlined the particular problems our industries face and the specific research projects we recommend to correct these problems.

We have also recounted a long and successful relationship our industries have had with the Eastern Regional Research Center. Mr. Chairman, we are well aware that the entire Congress and this committee faces budget constraints. Therefore, we would hasten to point out that what we are suggesting is not necessarily an increase in the Agricultural Research Service's overall budget, but, rather, the committee's endorsement in redirecting existing funds.

As we understand it, as recently as 1980, the budget for research on hides and leather at the Eastern Regional Research Center was at the $2 million level. This funding supported approximately 17 researchers. Today, the research budget is a little over $1 million and supports about six researchers.

This decreased level of support was due to reprioritization of projects at the Eastern Regional Research Center. We are here to report to you today that our industries now are in a position of need and to suggest a reexamination of the research priorities at the ARS in order that moneys be made available to provide solutions to our problems. We merely want to be back to the funding level we had years ago.

The combined value of shipments for the agricultural byproducts our associations represent is at the $3.5 to $4 billion level, and yet funding for research of our programs is only to the tune of $1 million. An additional $1 million is small in comparison to the total value of the industry. However, we feel it represents an amount which is adequate and which we can put to efficient use.

We are on the verge of a tremendous opportunity in world trade in our products. We must stay competitive in order to prosper. With positive results from the research we propose, it will be possible for our industries to grow and compete. At the time, a few years ago, when other programs were deemed more important for research, our industries were the ones who were sacrificed. Today, we are facing critical needs and respectfully request that we now be granted sufficient funds for badly needed research programs.

Thank you very much for your attention, Mr. Chairman. We would be happy to try to answer any questions that you have.

Senator **BURDICK**. If research on cattle hides and conversion to leather were augmented to your recommendation level of $2 million, do you believe this would have a direct impact on increased production, more affordable domestic leather products and a larger share of the world leather market?

Mr. **BREITER**. There is no question in our minds, Mr. Chairman.

Mr. **MEYERS**. We are busy exporting. We export to 60 different countries, and we find the gap between marketing and research has widened, and we do need some assistance, additional assistance from ERRC.

Senator **BURDICK**. Is the Eastern Regional Research Center the only location this research is conducted?

Mr. **BREITER**. On the Federal level.

Senator **BURDICK**. On the Federal level?

Mr. **BREITER**. That is correct.

Mr. **Meyers**. We have had a laboratory since 1923 at the University of Cincinnati. But in recent years, most of the research there has been involved in the environmental aspects of our industry and not product development or enhancement.

Senator **Burdick**. Outside of that center, are there any other centers?

Mr. **Breiter**. Not on an industrywide basis. Most of the individual companies that are involved have their own research programs which are dealing with specific problems of their products.

Mr. **Meyers**. I just returned, Mr. Chairman, from a trip to India, where I had occasion to visit the Central Leather Research Institute in Madras. That is funded by the Indian government. We have six people involved in research in Philadelphia at the ERRC. There are 635 people on the staff in Madras, of which 200 are at the scientist level.

That is just one country. I could enumerate any other number of instances of similar support by our foreign competitors.

Senator **Burdick**. This is India?

Mr. **Meyers**. India; yes, indeed.

Senator **Burdick**. What are the other leading leather-producing countries?

Mr. **Meyers**. From my standpoint, it is Korea. Korea has accelerated their export of finished goods to this country at an incredible rate; followed by Taiwan in the footwear industries; South America, Brazil. They also are major competitor forces to our domestic leather and hide industries.

Senator **Burdick**. Then we have competition around the world?

Mr. **Meyers**. Yes, sir.

Mr. **Breiter**. We have a lot of competition. In the case of hides, Mr. Chairman, the United States is one of the leading suppliers of cattle hides for leather to the world markets. We are very proud of that because of the very strong cattle supply that we have here in this country, and we are very proud of the quality of the materials that we supply.

Senator **Burdick**. I am interested in this subject very much. We raise cattle in my State, and I am sure that the value of the hide is a factor many times in income, is it not?

Mr. **Breiter**. No question about it. The hide represents about 7 percent of the weight of the live animal. In terms of the value that is received by the cattleman today for that product, when he sells his entire animal, he is getting probably about $70 to $75 for that hide which, considering the price of live animals today at $7,200 per hundredweight, that is 10 percent of the value coming back as a byproduct. It is a very nice piece of business for them.

Senator **Burdick**. Thank you, gentlemen.

Mr. **Meyers**. Thank you, Mr. Chairman.

Mr. **Breiter**. Thank you, Mr. Chairman.

[The statement follows:]

## STATEMENT OF JEROME J. BREITER

Good morning. My name is Jerome J. Breiter. I am president of the U.S. Hide, Skin & Leather Association (USHSLA), the trade association representing the suppliers of leather-making raw materials. I am appearing here today with Mr. Charles S. Myers, president of Leather Industries of America (LIA), the trade association representing the U.S. tanning industry and suppliers to that industry. For almost eight decades we have served our members, and we appear before you today to address this very important matter before the Appropriations Subcommittee on Agriculture, Rural Development, and Related Agencies.

We are here to present testimony on behalf of the Agricultural Research Service (ARS) and its Eastern Regional Research Center (ERRC) in an effort to secure an increased level of funding for certain hide and leather research programs.

The gist of our message is simply that the time is overdue for restoring funds in the hide and leather research budget at ERRC. In support of this objective, we hope to identify specific needs, summarize the benefits of such research, and justify the proposal for this Committee's deliberations and consideration.

We have consulted at length with Dr. Kinney and his staff about our concerns. Additionally, our industry enjoys a unique ongoing dialogue with the ERRC under the auspices of the American Leather Chemists Association (ALCA) Research Liaison Committee. The research program we are about to identify is urgently needed by our respective industries, and can be attainable, given the necessary time and resources. What we will describe is of the utmost priority to us. We will discuss initially the area of cattlehides and then move on to leather made from those cattlehides.

First cattlehides -- we see a growing need for improvements in new technology for hide preservation. Currently hides are preserved prior to shipment to the factories where the tanning process occurs. The method in use today utilizes salt or brine to effect this preservation.

The industry believes strongly that there is an imminent need to assess other alternatives to brine curing such as irradiation, chilling and chemical methods of effecting hide cure. We anticipate that there may be environmental regulations in the future which could curtail the use of salt in the preservation of cattlehides. We therefore have an opportunity to position ourselves early in solving what we anticipate to be problems ahead in the present day cure technology.

While research is being done on alternatives to brine cure, additional research is needed on bacterial problems associated with brine cure. Salt tolerant bacteria have been identified as major contributors to hide and leather damage. We need to know more about these bacteria and methods for their control.

The second area of research lies in the conversion of hides to their natural finished product, leather. And here, the concerns are twofold -- environmental impact and product development.

Most leather tanned in the U.S. today utilizes the mineral chromium as the tanning agent. The process is quick, and therefore efficient, and produces leather used in shoe uppers, garments, handbags and other personal leather goods. Chromium, in addition to many other heavy metals, has come under increasing regulation in recent years. Although the chromium used in tanning is in the trivalent state, there is growing concern that under certain isolated circumstances, it might convert in the environment to the hazardous hexavalent state.

Research in the following areas is warranted because of growing environmental regulation:

(a) improvements in conventional chrome tanning, including improved chrome uptake and reduced chrome loss in industry effluent,

(b) new tannages, non-chrome based,

(c) better understanding of the aquatic toxicity of industry effluent to meet more stringent water quality criteria, and

(d) studies on the fate of chromium solid waste disposal in soil environments.

Ecological concerns are a top priority with both the hide and leather industries.

In the area of product development, the ERRC can also play a major role. Much work still needs to be done in the emergence of new finishing technologies. In addition, research on substantive fatliquors and dyes leading to improvements in lightfastness, launderability and dry-cleanability represents an opportunity for us.

In order to accomplish the research objectives outlined heretofore, our best estimate available at this time is that the restoration of $1 million to the current ARS/ERRC Hides, Leather and Wool Research unit budget would be needed.

The benefits of this proposal can be captured in one phrase -- export market expansion. Both the leather and hide industries are involved today in an export mode unlike anything seen before in either industry.

The leather industry currently operates in seven offshore markets under the auspices of the USDA/FAS Targeted Export Assistance program. Leather exports reached $395 million in 1987 -- up $80 million from the previous year.

The hide industry is also coming off a record year, having exported 27 million hides with a value of $1.3 billion. As you witness, the potential return on the increase in research support can be substantial.

As further justification for this request, let us state that the existing relationship among our respective industries and ERRC reflects a long and productive tenure. Some of ERRC's accomplishments in recent years are:

(1) the development of the tanning agent glutaraldehyde in use the world over,

(2) the identification of a genetic defect in Hereford cattle responsible for vertical fiber hide defect,

(3) work in reactive dyes that are unaffected by laundering and dry cleaning,

(4) studies on effluent treatment utilizing activated sludge,

(5) the development of radiation curable finishes for leather that reduce or eliminate VOC emissions,

(6) a prototype continuous beaming process capable of processing cured hides on a conveyor system at the rate of 120 hides per hour, and

(7) current studies on electron beam irradiation as a possible alternative to salt curing.

ERRC's accomplishments are further documented in the attached article from the December 1987 issue of Leather Manufacturer, a trade publication. We have been well served over the years in the areas of pure research and now stand ready to continue this partnership in the area of applied or problem-oriented research.

We ask only that we be granted the support, perhaps modest by others' standards, to continue this relationship. Our competitor nations -- Italy, the United Kingdom, and Japan -- all have well-established government programs in support of their native industries. India alone, with its Central Leather Research Institute, employs 635 individuals of which 200 are at the scientist level.

Within our U.S. industries, there resides a modest degree of research capability with the large companies and supplier infrastructure busily engaged in product development, albeit of a proprietary nature. In addition, both our industries provide existing laboratory services, with LIA's research laboratory at the University of Cincinnati dating back to 1923. But all of this is not quite enough. More is needed.

In summary, the U.S. leather and hide industries stand on the threshold of increased opportunity. Both are firmly committed to operating successfully in today's global economy. Both, however, are constrained by a resources lag to repair the growing gap between research and marketing.

Presently, the ARS funding appropriation for hide and leather research is at the $1.14 million level, down from $2 million in 1980. The combined value of shipments in the leather and hide industries is at the $3.5 to $4 billion level. Today's meager funding level astonishingly represents two-tenths of one percent of the Agency's budget.

We have identified the areas of need and have confidence the plan will work; it is accomplishable. We have a tried and proven record of cooperation with ARS these many years. It is our hope that even with the magnitude of all before this Committee, our proposal will receive favorable consideration, and that the appropriations level will be restored to the 1980 amount. This important work must continue.

## NATIONAL ASSOCIATION OF STATE FORESTERS

### STATEMENT OF SID MOSS, PRESIDENT

Senator **HARKIN**. Our next witness is Sid Moss, president of the National Association of State Foresters. Welcome to the committee.

Mr. **MOSS**. Thank you, Mr. Chairman. In the interest of time, I would like to ask that my full written statement be entered into the record.

Senator **BURDICK**. It will be so received.

Mr. **MOSS**. Mr. Chairman and members of the subcommittee, I am Sid Moss, State Forester of Mississippi and president of the National Association of State Foresters. Collectively, the State forestry agencies protect, service and manage over 80 percent of this nation's forest land, or about 500 million acres.

Today, I would like to highlight some of our funding recommendations for FIP, ACP, Rural Community Fire Protection Program, McIntire-Stennis research funding and the Conservation Reserve Program.

We do not believe that the administration's proposed funding level for the majority of these programs reflect the real needs of America. As you know, the administration's proposed budget eliminates FIP, ACP, and RCFP. McIntire-Stennis research funding is significantly reduced.

Only the Conservation Reserve Program is maintained at levels consistent with the fiscal year 1988 appropriation. The National Association of State Foresters recommends that funding for all of these programs be continued as a minimum at their fiscal year 1988 levels. We realize that budgets are tight and tough decisions regarding appropriations must be made.

However, we believe that the returns provided by these programs, such as community fire protection, natural resource protection, soil protection and restoration and increased timber supplies, cannot afford to be eliminated.

Wood fiber shortages have been projected by the turn of the century. It is estimated that the demand for wood will exceed supply by 21 billion board feet annually. Private and nonindustrial timberland owners have the potential to prevent this shortage.

In addition, the growing, harvesting and processing of wood provides jobs and economic stability to many communities as well as a supply of consumer products for people. Many private landowners are still not aware of the benefits and importance of reforestation. Many lack the capital required for this type of expenditure and are reluctant to borrow money because of the long-term nature of a forestry investment.

The Forestry Incentive Program which you approved in 1974 offsets some of the barriers to long-term investments in forestry, which include high interest rates; long-term cash commitments, and protection of forest investments.

The National Association of State Foresters recommends that $11.9 million be appropriated for fiscal year 1989 to continue this cost-effective program. Another area of concern for us is the zero budget for the Rural Community Fire Protection Program. Our citizens are moving in increasing numbers from cities to suburban and rural settings within our forests. Lives and property are endangered when wildfire occurs, and firefighters are facing more complications on fires because wildfires in housing developments are common facts within every State.

The special nature of fires in this wild land urban interface frequently forces firefighters to fight two types of fires, often without the necessary cross training in wild land and structural fires. It is almost impossible and not cost effective for any single state or Federal agency to gear up to completely handle disastrous fire seasons like those we have experienced in the past 3 years.

Fire protection efforts in rural areas depend more and more on volunteer and small community fire departments. These small community forces depend on the financial and technical assistance and training provided by RCFP. We can't ignore this problem, and we need to better protect this wild land urban interface to reduce losses of forest, lives, and property. Funding should be maintained at fiscal 1988 levels.

Research is crucial to increasing the efficiency and productivity of forest management and development. The unique State-Federal-university partnership provided by the McIntire-Stennis Research Program adds significantly to overall productivity and the health of our Nation's forests. Our association recommends and supports an increase for this program to a level of $25 million for fiscal year 1989. We believe this level is necessary to ensure the continued effectiveness of this act. We appreciate the guidance and good work of Senator Stennis in providing to forestry through this program.

Finally, we would like to issue encouragement for increasing the funding for the Conservation Reserve Program authorized by the 1985 farm bill. The program is working well. We strongly support continued funding for the Conservation Reserve Program.

I conclude by saying thanks to the committee for allowing me to testify. The NASF appreciates your past support of these vital programs. I will try to answer any questions.

Senator BURDICK. Thank you very much. Are the five Federal programs you mentioned in your testimony the only Federal programs directed at forest management and preservation? Are they the only ones that are directed at forest management and preservation?

Mr. Moss. Yes, sir; they are the major programs.

Senator Burdick. What about the Forest Service?

Mr. Moss. These programs are passed through on a State and private arm from the Forest Service. The Forest Service is involved in some of this work with the State and private foresters.

Senator Burdick. I see.

Mr. Moss. Their dollars come through this system here from the Forest Service.

Senator Burdick. Thank you.

[The statement follows:]

## STATEMENT OF SID MOSS

Mr. Chairman, members of the subcommittee, I am Sid Moss, State Forester of Mississippi and President of the National Association of State Foresters. In that capacity, I have the privilege to represent the directors of the state forestry agencies of each state. The primary responsibility of their agencies is to conduct forestry work for the public good on state and privately-owned forest land in their respective states. Collectively, the state forestry agencies protect, service, or manage over 80 percent of this nation's forest land; or about 500 million acres. They work cooperatively with private, Federal and other state agencies, organizations, and individuals in directing and strengthening all forestry programs within their states.

We are here today to discuss the importance of funding for several programs under your jurisdiction vital to our nation's present and future forests. These include: Forestry Incentives Program (FIP) and Agricultural Conservation Program (ACP), funded in the Agricultural Stabilization and Conservation Service budget (ASCS); the Rural Community Fire Protection Program (RCFP), funded in the Farmers Home Administration budget; McIntire-Stennis Research funding; Renewable Resource Extension, and the Conservation Reserve Program.

For fiscal year 1989, the Administration has proposed eliminating the Forestry Incentives Program, Agricultural Conservation Program, Renewable Resource Extension Program, and the Rural Community Fire Protection program. The Administration's budget also proposes to significantly reduce funding for McIntire-Stennis research. Only the Conservation Reserve program is maintained at levels consistent with fiscal 1988 appropriations. The National Association of State Foresters recommends that funding for all of these programs be continued, as a minimum, at their FY 1988 levels.

**NASF Recommended Levels – Selected Programs**

(in millions of dollars)

| Fiscal year Source | 1988 Enacted | 1989 Admin. | 1989 NASF |
|---|---|---|---|
| FIP | 11.9 | 0 | 11.9 |
| ACP | 176.9 | 0 | 176.9 |
| McIntire-Stennis | 17.5 | 13.5 | 25.0 |
| RREA | 2.8 | 0 | 2.8 |
| RCFP | 3.2 | 0 | 3.2 |

### Forestry Incentives Program

Wood fiber shortages have been projected by experts to occur by the turn of the century. While shortfall projections vary, most forestry experts agree that by the turn of the century we will probably be facing a demand for wood that exceeds supply by approximately 21 billion board feet annually. Private and nonindustrial land and timber owners have the potential to address this trend.

In addition, the growing, harvesting and processing of wood provides jobs and economic stability to many communities as well as a supply of consumer products for people. Privately owned land could also produce the timber necessary to reduce the current trade deficit of almost $6 billion dollars annually.

Unfortunately, many private landowners are still unaware of the benefits and importance of reforestation. In addition, many lack the capital required for this type of expenditure and are reluctant to borrow money because of the long-term nature of a forestry investment. The landowner typically has to wait 20-25 years or more for a return on his or her investment.

By 2030, privately held timber land is expected to provide almost 60 percent of the total roundwood supply. However, these forest lands are not being regenerated and reforested after harvesting takes place at levels to sufficiently sustain future wood supplies. The Forest Service estimates that in the South alone, nearly 1 million acres per year are reverting from productive pine timber to brush and low quality hardwoods. Further, the Forest Service has indicated losses and high mortality due to forest insects and diseases, and conversion to other uses are depleting the forest resource.

Fortunately, FIP, which Congress approved in 1974, is designed to offset the obstacles to long-term investment in forestry, which include high interest rates, long-term cash commitments and protection of forestry investments. However, other incentives will be necessary, such as tax credits and technical assistance to encourage the 7.8 million owners of private nonindustrial forest land to plant their unproductive acreage in trees for the future.

Between 1975 and 1986, 92,000 private landowners entered into cost-share agreements with the ASCS under FIP. These agreements called for 1.8 million acres of tree planting and 1.0 million acres of timber stand improvement.

The Forestry Incentives Program is very cost-effective and should be continued to forestall near future wood supply shortages. Its success depends on the support that begins here. The National Association of State Foresters recommends that $11.9 million be appropriated (FY88 levels) for fiscal year 1989.

**McIntire-Stennis Research Funding**

Research and newly improved technologies are crucial to increasing the efficiency and productivity of forest management and development. McIntire-Stennis Research funding, authorized in 1964, allows the Secretary of Agriculture to provide assistance on a matching basis to land-grant colleges, agricultural experiment stations and other state-supported colleges or universities offering forestry education. The McIntire-Stennis program recognizes the needs of individual states and regions which depend primarily on state universities and the U.S. Forest Service to provide research and a technology base. This unique state-federal-university partnership in forestry research has added significantly to the overall productivity and health of our nation's forests.

Our association recommends and supports an increase for this program to a level of $25 million in FY 1989. We believe that his level is needed to insure the continued effectiveness of this Act to significantly strengthen the role of technology in increasing forestry competitiveness while providing greater non-commodity benefits from our forestlands.

**Renewable Resources Extension**
The Renewable Resources Extension appropriation is targeted to support the nation's need for a continuous supply of forest resources. It is a major factor in the transfer of needed forest technology.to nonindustrial private landowners as well as industry and business enterprises involved with management.

The NASF recommends that this program continue to be funded at a level of $2.8 million for fiscal year 1989.

**Rural Community Fire Protection**
Our citizens are moving in increasing numbers from cities to suburban and rural settings within our forests. This trend is causing concern in these areas because lives and property are threatened when wildfires occur. We are now facing more complications on fires because wildfires and housing developments are common facts within every state. Now firefighters are finding themselves in the position of having to protect structures built in close proximity to flammable, native vegetation.

The special nature of fires in the urban-rural interface frequently forces firefighters to fight both wildland and structural fires. Fire personnel who are accustomed only to suppressing wildland fires must be trained to fight structural fires, and municipal fire departments trained and equipped to fight wildland fires.

We have found it safer and more efficient to use only trained fire fighting crews on the fire lines. In emergencies, the military can help by providing necessary back-up for these crews. It would be almost impossible and not cost-effective for any single state or Federal agency to gear up to completely handle a disastrous fire season like we had this year. Cooperation is the key to good results.

Fire protection for improvements in rural areas will depend more and more on volunteer and small community fire departments. The Rural Community Fire Protection Program provides financial and technical assistance to train, organize and equip rural fire departments.

Under RCFP, financial assistance is limited to not more than 50 percent of the actual expenditures. However, Federal government assistance has mounted to less than 40 percent of the actual spending, while local fire departments have picked up more than 60 percent of the costs. Available funds are not able to meet more than one out of ten requests for assistance.

To better protect this urban-rural interface and reduce losses of land, lives, and property, the National Association of State Foresters recommends an appropriation of $3.2 million for fiscal year 1989.

**Conservation Reserve Program**
The National Association of State Foresters believes that there is no conservation issue more important than the Conservation Reserve Program authorized by the 1985 Farm Bill. The program is now fully in place and working well. It has demonstrated that it is cost-effective in reducing both soil erosion and surplus agricultural commodities. In addition, acres planted to trees will provide badly needed long-range timber production and other environmental benefits.

The Soil Conservation Service estimates indicate that the CRP will provide an annual erosion reduction rate of 764 million tons per year once the full 40 million acres are enrolled. In addition to erosion reduction, the CRP program will reduce the number of pesticide applications, fertilizers, and sediment runoff, which will help us reduce non-point source pollution . At the same time, government outlays are reduced as crop surpluses eligible for payments and available acreage under other government commodity programs are reduced.

Farmers should be encouraged to place trees on all acres suited to tree growth because forest cover is more permanent than other vegetation and it is important in preventing and reducing soil erosion, improving water quality and contributing to better wildlife habitat. Trees are also a crop and source of needed raw material.

There is no more compelling resource priority than the protection of soil that we as a nation depend upon, either directly or indirectly, for our food. Also, profitability must be restored to agriculture if it is to survive. Costs must be reduced if this is to happen. Forestry has a significant role in both of these arenas.

NASF strongly supports continued funding for the Conservation Reserve Program.

## Hudson River Film and Video Co.

### STATEMENT OF JULIE MOTZ

Senator **Burdick**. Julie Motz and Michelle Clifton, Hudson River Film and Video Co.

Ms. **Motz**. I am sorry my partner Michelle isn't here. She is busy planning the shooting schedule for our first documentary. I prepared a written statement which I would like to have entered.

Senator **Burdick**. Would you pull the mike a little closer?

Ms. **Motz**. OK? I have prepared a written statement which I would like to have entered into the hearing's proceedings.

Senator **Burdick**. The entire statement will be made a part of the record.

Ms. **Motz**. Thank you. Mr. Chairman, I should start by saying I am Julie Motz. I am the executive producer of the Hudson River Film and Video Co. Before I tell you a little more about why I am appearing here today, I would like to say what a privilege it is to address someone who has done so much to advance the cause of agriculture and the interests of rural people in this country.

The wealth and the wisdom of this Nation reside in its land and to the people who live close to it and by it. This was a fact recognized by Thomas Jefferson when he helped found this country, and it was reaffirmed by Abraham Lincoln when we signed the bill which brought the Department of Agriculture into existence.

One of the original and most important mandates of the Department is to disseminate information about agriculture to the American people. It is in keeping with this mandate that I would like to request that an appropriation of $500,000 be made available in the Office of the Assistant Secretary for Science and Education to cover half the costs of a documentary series for public television on American agriculture and nutrition.

These funds will be matched by us, the producers of the series, on a dollar-for-dollar basis with non-Federal funds. To date, we have raised $185,000 for the production of the first two programs in the series on the history, the present and the future of American agriculture. In addition, there is legislation pending in the New York State Assembly to allocate another $50,000 to the project.

Finally, the U.S. Department of Agriculture, having carefully reviewed the proposal, has decided to give us a grant of $50,000 from this year's departmental budget to get us started.

In a nation in which fewer than 2 percent of the population are now actively engaged in farming, it is essential that the public understand the people and the processes which continue to supply the abundant and wholesome food and fiber which are at the core of our nation's wealth and well being.

Farm policy cannot be made in a vacuum. I know that every member of this committee has at least one program affecting the life of the American farmer in rural America about which he cares passionately. I also know that the American public, now largely urban and suburban, has only the slightest notion of what that program might be or why it must be supported.

It is the singular blessing of those of us who deal in the public media that we have the power to move millions, to excite them, to educate them, and to inform them. I hope that you will allow us to use that power to awaken the American public to the significance of our agricultural and rural American history and to the brilliant future of the American land.

Thank you very much for being so attentive to my testimony. I would be glad to answer any questions you might have.

Senator BURDICK. Thank you. If you were successful in receiving additional funds from USDA, would you allow USDA to exercise any control or to make any suggestions on the content of the films?

Ms. MOTZ. We certainly would welcome any suggestions the U.S. Department of Agriculture would have, and I consider them a tremendous informational resource; however, since the programs are for public television, we could not possibly allow them to have control, since no funder is allowed to have control over anything they support for public television.

Senator BURDICK. Will your films be editorial or purely informational?

Ms. MOTZ. They will be purely informational. We are true documentarians. We go forth to document, to discover what is there and to present that to people.

Senator BURDICK. Thank you.

Ms. MOTZ. Thank you very much.

[The statement follows:]

## STATEMENT OF JULIE MOTZ

Mr. Chairman and distinguished members of the Committee, the Hudson River Film and Video Company is a not-for-profit tax-exempt organization, made up of five filmmakers who have worked together for the past eighteen years, making documentaries for public television which deal with American history, society, culture, politics and economics. We have won five EMMYs and the Grand Prize of the Houston International Film Festival, as well as numerous other awards. We are unique both in our duration and in our commitment to using television to educate the American public about subjects which deeply affect us all, but are seldom explored with any depth on the evening news - or anywhere else in commercial television. As documentarians, we are almost as endangered a species as the American farmer at times has seemed to be - and it is perhaps this which has brought a special zeal to our pursuit of a current project - a series of programs about American agriculture and nutrition.

I would like to call your attention to the following language in the original enabling legislation which established the United States Department of Agriculture in 1862: "That there is hereby established at the seat of government of the United States a Department of Agriculture, the general designs and duties of which shall be to acquire and to diffuse among the people of the United States useful information on subjects connected with agriculture in the most general and comprehensive sense of that word..."

It is in the spirit of this lofty and important mission that I am requesting that $500,000 be made available in the Office of the Assistant Secretary for Science and Education for the production of four one-hour films about American agriculture and nutrition, with the provision that these funds be matched dollor-for-dollar with non-federal monies, to be provided by grants from foundations, corporations, private donors, state and local governments to the films' producers, the Hudson River Film and Video Company. The films will be produced at a cost of $250,000 each, with half of the budget being underwritten by the Department, and the money for each production released to the producers when the $125,000 match has been made.

To date we have raised $185,000 of the funds needed for the first two productions: one on the present and future of American agriculture and rural America and one on its history. The funds come from the New York State Department of Agriculture and Markets, the New York State Natural Heritage Trust Fund, the Ford Foundation, the Millbank Memorial Fund, the Starr Foundation and the Oakleigh L. Thorne Foundation. There is at the moment legislation pending in the New York State legislature to allocate an additional $50,000 to this project. Moreover, officials at the United States Department of Agriculture have announced their intention of supporting the series with $50,000 of federal funds from the 1988 budget, and have expressed great enthusiasm for our plans and excitement about the audiences we will be reaching.

The films will be distributed nationally by the Public Broadcasting Service, which has already expressed a strong interest in the series and has aired all of our previous productions. They will also be distributed to schools, colleges and universities throughout the country and made available to to the Extension Service for use both here and abroad. Further dissemination will occur through the American Farm Bureau Federation, 4-H, the Future Farmers of America, and other agricultural and rural action groups. Footage not used in the final edited version of the series will be given to the archives of the National Agricultural Library.

In a nation in which fewer than 2% of the population are now actively invovled in farming, it is essential that the public understand both the processes and the people who continue to supply the abundant and wholesome food and fiber which is at the very heart of our nation's wealth and well-being. Farm policy cannot be made in a vaccuum. I know that each member of this committee has at least one program affecting the life of the farmer and rural America about which he or she cares desperately. I also know that the American public, now largely urban and suburban, has only the remotest sense of what that program might be and why it is necessary to support it.

We all need to connect back to our "roots" - and it is no accident that the key word in that phrase brings up an agricultural image. As a whole, Americans have become dangerously detached from the land which is our heritage and our glory, from the life which it nurtures and from the lives of those who nurture that life for us. Whatever connection we may have, and whatever ideas, tend to be either sentimental or histrionic. We lack the subtle understanding of the systems and the people of rural America and the food industry which we lavish on subjects of far less significance, but with greater media coverage.

By exploring both the history and the current and future state of American agriculture and American food in a series of television programs which will be informative and compelling, we can correct this imbalance. Through interviews, dcoumentary footage and carefullly researched narration we can begin to let people see rural America and the industry it supports in all its richness and complexity. We can give the people of this country a sense of pride and power in what we have accomplished and can accomplish with this mightiest of our resources and our blessings. We have assembled a group of distinguished advisors to help us in this task, whose names are attached as part of this testimony.

Thank you for your time and your attention. I hope that you will help us bring the important story of American agriculture and our rural heritage to the American people.

## ADVISORY BOARD FOR

## OF YIELDS AND YEOMEN: THE STORY OF THE AMERICAN FARMER

We have assembled a board of advisors who will guide and advise us on the content of the films, and help judge the effectiveness of the final product. They are:

Dr. Charles Benbrook - Executive Director, Board on Agriculture, National Research Council, National Academy of Sciences

Dr. David Call - Dean, College of Agriculture and Life Sciences, Cornell University

Dr. Ralph Hardy - Boyce-Thompson Institute for Plant Research

Frances Moore Lappe - Co-Founder, Institute for Food and Development Policy; Winner 1987 Right Livelihood Award

Wayne Rasmussen - Historian, Economic Research Service, U.S. Department of Agriculture

Dr. Gordon Rausser - Professor of Agricultural Economics, University of California at Berkeley

Robert Rodale - Publisher, Rodale Press

Dr. Monkombu S. Swaminathan - President, International Union for Conservation of Nature and Natural Resources; Winner, 1987 World Food Award

Garth Youngberg - Director, Institute for Alternative Agriculture

## SUBCOMMITTEE RECESS

Senator BURDICK. The subcommittee will be in recess until 2 o'clock.

[Whereupon, at 12:05 p.m., Thursday, April 28, the subcommittee was recessed, to reconvene at 2 p.m. the same day.]

(AFTERNOON SESSION, 2:05 P.M., THURSDAY, APRIL 28, 1988)

# NONDEPARTMENTAL WITNESSES

## SUBCOMMITTEE PROCEDURE

The subcommittee reconvened at 2:05 p.m., Hon. Robert W. Kasten presiding.

Present: Senators Burdick, Bumpers, and Kasten.

Senator KASTEN. The subcommittee will come to order. This afternoon, we will conclude our hearings of the review of public testimony. I would like to welcome all of you who are here this afternoon and remind you that your statements will be made a part of the hearing record in full. Therefore, we ask that you please summarize them briefly within a period of 5 minutes.

The chairman has a clock here, a stopclock, so if you would keep your eye on the light and finish when the red light comes on, it would be greatly appreciated. I would further like to mention that the subcommittee cannot receive for the record any copyrighted material for publication unless arrangements have been made in advance to obtain the permission of the copyright owner to include that material in the hearing transcript.

This notice is given to protect copyright owners as well as the subcommittee and witnesses. I am pleased today to be able to introduce to the subcommittee Dr. John Ingle, who is the director of the Advanced Research Division of Agrigenetics Corp. of Madison, WI. Dr. Ingle, a native of the United Kingdom, has had a long and distinguished career in plant biology and in biotechnology. It might be of interest to the chairman of the committee and others that Dr. Ingle started with a Ph.D. thesis dealing with the metabolism of nucleic acids in germinating barley.

Dr. Ingle has been with Agrigenetics in Madison since 1984. He directs a laboratory with a total staff of almost 100 staff members. This particular laboratory is doing work in the transplantation of genes in plants, the development of molecular technology to improve plant breeding and the improvement of nitrogen fixation in soybeans. Dr. Ingle is, thus, well qualified to speak on the proposal to establish a Cooperative State Research Service competitive research grant program for plant biotechnology in the North Central States.

## MIDWEST PLANT BIOTECHNOLOGY CONSORTIUM

### STATEMENT OF DR. JOHN INGLE, DIRECTOR, ADVANCED RESEARCH DIVISION, AGRIGENETICS CORP.

Senator KASTEN. Dr. Ingle, we welcome you to this subcommittee and are interested in hearing your testimony.

Dr. INGLE. Thank you very much, Senator, and thank you for the opportunity to speak to the committee. I confirm that my name is

John Ingle, and I am speaking on behalf of the Midwest Plant Biotechnology Consortium. We have provided a statement, so I would just like to summarize the main points from this.

First of all, I would like to comment on the Midwest Plant Biotechnology Consortium. This is an R&D Consortium which at the present time includes 15 universities, two research labs and 37 companies, all from the North Central States, and the objective of this is by developing a relevant base of the basic plant sciences and by using state-of-the-art techniques of plant biotechnology, the universities and the companies in the Consortium can increase the diversity of the North Central agriculture.

I think the reasons for targeting this to the Midwest are obvious: This is the heart of the agricultural production in the United States; it can cope with U.S. requirements easily, and it has the potential to actually provide major exports, and because of the depressed agricultural economy, it surely needs revitalization and new products.

At the other end of the spectrum, the Midwest has the major group of land-grant universities containing tremendous strength in research expertise. So the Midwest has the need for agricultural revitalization, and it has the raw materials for it. It has got the agricultural capability, the research base and a large diversity of companies that are just waiting to explore that research base.

Why plant biotechnology? Well, the success of American agriculture depends on many factors, but one crucial component is superior technology. It is generally accepted now that plant biotechnology has the potential to make a major impact on this important segment of the U.S. economy.

Plant biotechnology has a sound basis and the U.S. Technologies have been developed which drastically change the conception and the potential of plants and plant production in the agricultural framework.

For example, we can take a gene from anywhere, and we can insert it in with the plant's genes and get that plant to make new products. We already have plants that produce their own insecticides and kill off insects that start eating them. We have plants that produce chemicals that prevent viral infections of the plants, and we have the basic technology to actually use plants as factories for producing higher value products such as industrial or pharmaceutical chemicals.

So we have, at this stage, a working technology, and we have a limited number of products that are coming out of this technology. We can really consider this as phase I of plant biotechnology. Phase II, which is what we are concerned about, is where we will really exploit this technology. Phase II is where the plant biotechnology takes off, and it provides the major impact on the agricultural economy, but phase II requires a major research effort to understand the mechanisms of important reactions in plants, to understand how particular compounds are made in plants, and to understand how the levels of these compounds are regulated, because in phase II, we want to use the technology to manipulate and control the levels of constituents which are important for specialty products, important for nutritional quality of plant products, important for things like aroma and taste, et cetera.

To do these things, we have to drastically improve our basic knowledge of plant science.

Phase I happened despite the relatively low level of Federal support for plant science. This was because much of that research, which was owed in the successful phase I, was actually provided by private companies. I think it is clear at this point that phase II is not going to be funded privately and that is since all of the company resources will be required to commercialize those products which are coming out of phase I, because I am sure you know, it takes about 10 times the resources to actually develop and sell a product than it takes to research that product.

So phase II of plant biotechnology won't happen in the U.S. unless the Government provides a better level of research support for plant science, preferably research support within a framework that is sensitive to communication between research and commercial interests.

I think it is fair to say that if phase II doesn't happen, then the United States will not be competitive in agriculture on a worldwide basis. So we are asking Congress to consider appropriating a sum of money specifically for the purpose of enhancing industrially relevant research in plant science. We suggest that this be done or provided through the Food Security Act of 1985, section 1472(c) which provides for grants to research or educational institutions and organizations and other contractors; that the U.S. Department of Agriculture support a competitive program of research and development in plant biotechnology in the North Central States.

Now, the final point I would like to address is why a consortium. Why do we need something broader than the normal delegation of R&D authority to an individual State? Well, we propose that the development and exploitation of plant biotechnology will be far more effective on a regional basis.

First, the research base and technology required for this is very extensive, and we consider it far better to pool the resources and talents of the Midwest universities than for each to go their own way.

Second, at the other extreme of this, a lot of the research and development is common to much of agriculture, and even where it is specific for one crop, that crop, of course, is not limited to a single State. So the Midwest represents a much larger and better market than does any single State.

There are, of course, percentages for regional development; there is, in fact, low impact agriculture; integrated pest management, and pesticide impact assessment. So there are these precedents for regional developments.

Finally, why universities and company consortium? The objective here is to identify and give priority to research which has the most industrial relevance. Research projects from universities will be subjected to a two-fold review process before qualifying for consortium support.

First, the projects will be reviewed by company members of the consortium to determine whether or not they provide a research base relevant to North Central agriculture, and then the projects that survive will be peer reviewed for scientific comment.

Senator **Kasten**. Dr. Ingle, I am going to have to ask that you summarize the remainder of your testimony, because the red light is on.

Dr. **Ingle**. I will summarize a summary, then. I think it is very clear that we need to revitalize U.S. agriculture, and plant biotechnology can have a major impact on this. We feel that the place to do this is in the Midwest, and the most efficient structure is a regional university company consortium approach. Thank you, Mr. Chairman.

Senator **Kasten**. Dr. Ingle, I thank you. I have one or two questions that I would like to ask, but I would also like to recognize that Chairman Burdick is here now. Do you have a comment or a statement? I made the opening statement and established some of the guidelines for the hearing.

Senator **Burdick**. You have done well.

Senator **Kasten**. If you have no statement, I would like to ask you, Dr. Ingle, if you could give us one or two specific examples, either of new uses or existing crops that biotechnology research might make possible or of new cash crops that biotechnology research might make possible? In other words, where are we going here with specific things that those of us who are on the committee could understand?

Dr. **Ingle**. OK. There were two major benefits by using this technology. One is that it offers a very powerful way to help the environment. Because what we can do by building in particular processes into the plant is reduce the level of chemicals that are used in agriculture. I think everyone agrees that this is a major problem. This is why I mentioned the insecticide-resistant plants.

We already have these types of plants, which means that we have to spray on very much less nasty chemicals.

A second area which is important, and particularly important for the Midwest, is that one really wants to turn agriculture toward higher valued products. The straight commodity corn is a very low valued product. What we can do is make specialty corns much more feasible by using these technologies, so we can make corn with improved oil qualities, with improved starch qualities, proteins, et cetera.

So there are great opportunities by using this technology to do things that in normal agriculture, the normal breeders haven't really been able to come to grips with. I think it is probably these specialty crops which will help areas like the Midwest, where we have really got to get new products, new uses of what is a very good agricultural facility.

Senator **Kasten**. Dr. Ingle, we thank you for your testimony. Undoubtedly, there will be questions from members of the committee or possibly the staff, and we will submit those questions to you in writing, and we would hope that you could then reply back to the committee in writing. I am hopeful that we can work together and that we can find the dollars available to help with this important project.

We thank you very much for being with us today.

[The statement follows:]

## STATEMENT OF DR. JOHN INGLE

Chairman, thank you for the opportunity to speak to the Committee. My name is John Ingle and I am the Vice President for Research and Director of Agrigenetics Advanced Science Company, a plant biotechnology company in Madison, Wisconsin. I am speaking on behalf of the Midwest Plant Biotechnology Consortium, of which Agrigenetics is a member.

### The Challenges and Opportunities in Plant Biotechnology

The success of American agriculture depends on many factors, but one crucial component is superior technology. It is generally accepted that plant biotechnology has the potential to make a major impact on this important segment of the U.S. economy. However, this major impact won't happen without a lot more hard, innovative and constructive research, dedicated company commitments, plus support from the federal government.

Plant biotechnology has a sound basis in the U.S. Technologies have been developed which drastically change the conception and potential of plants and plant production in the agricultural framework. We can take a gene from anywhere, insert it with the plant's genes and get the plant to make a new product. We already have plants that produce their own insecticides and kill off insects that start eating them; we have plants that produce chemicals which prevent viral infections of the plant, and we have plants containing genes which make them resistant to a particular herbicide, a major step forward in weed management. We have the basic technology to use plants as factories for producing higher value products, such as industrial or pharmaceutical chemicals. So, we have a working technology, and we have a limited number of products coming out of this technology. I consider this as PHASE I of plant biotechnology. Scientifically, it has been extremely successful and it proves the point that plant biotechnology will have a major impact on agriculture.

PHASE II, however, is where we will really exploit the technology. PHASE II is where plant biotechnology takes off and provides the major impact on the agricultural economy. But, PHASE II requires a major research effort to understand the mechanisms of important reactions in plants, to understand how particular compounds are made and to understand how the levels of these compounds are regulated. In PHASE II we want to use the technology to manipulate and control the levels of constituents which are important for speciality products or for nutritional quality, aroma or taste. To do these things, we have to drastically improve our basic knowledge of plant science.

### Federal Initiative

PHASE I happened despite meager federal support for plant science. Much of the research which resulted in a successful PHASE I was supported by private companies.

PHASE II will not be funded privately. Company resources will be required and used to commercialize the products coming out of PHASE I. As you know it takes ten times the resources to develop and sell a product that it takes to research it. PHASE II won't happen in the U.S. unless the federal government provides a better level of research support for plant science, preferably research support within a framework sensitive to communication between research and commercial interests. If PHASE II doesn't happen, the U.S. will not be competitive in agriculture on a world-wide basis. PHASE II requires the funding of basic plant science that is necessary for the exploitation of plant biotechnology, and this includes training the best and brightest young plant scientists. It is our trained people who will enable us to continue to develop the new knowledge, new products, and new crops necessary to perpetuate our role as the leading agricultural power in the world.

Congress should consider appropriating a sum of money specifically for the purpose of enhancing industrially relevant research in plant science. We suggest this be done through the authority provided in the Food Security Act of 1985, Section 1472 (c) which provides for grants to research or education institutions and organizations and other contractors, for research, extension or teaching programs. We further propose that the U.S. Department of Agriculture support a competitive program of research and development in plant biotechnology in the North Central states, at a level of $5 million per year for five years, a program which will insure the industrial application of R & D findings.

## The Midwest Plant Biotechnology Consortium

The Midwest Plant Biotechnology Consortium is an R & D consortium which at the present time includes 15 universities, two research laboratories, and 37 companies all from the North Central states. By developing a relevant base of basic plant science and by using state-of-the-art techniques of plant biotechnology, the universities and companies in the Consortium will increase the diversity of North Central agriculture (1) by developing new cash crops, (2) by identifying new uses for existing agricultural products, (3) by increasing the economic and energy efficiency of current agriculture, and (4) by developing safe environmental practices.

Research projects from the universities will be subjected to a two-fold review process before qualifying for Consortium support. First, the projects will be screened by company members of the Consortium to determine whether or not they provide a research base relevant for North Central Agriculture. Projects that survive industrial screening will be peer reviewed for their scientific merit.

By using a process of review for industrial relevance, the Consortium provides the opportunity for that segment of society that should know the economic implications of new technologies best--the commercial sector--to review the research program for relevance to the eventual development of new products/processes. We should stress that the intention is not to dictate research to be done in universities, nor to support industry's research from federal funds, but rather to provide an opportunity for industrial comment on relevance and priority of one component of basic plant science research.

## Anticipated Pay-offs

We described the challenges and opportunities presented by the new biotechnologies in the beginning of this testimony. What are the pay-offs for our region and our country if we decide to meet these challenges and opportunities?

The bold and comprehensive program we propose will make a major contribution to revitalizing the U.S. agricultural economy. It will develop the knowledge necessary for the development of agricultural products that will be competitive in world markets.

The proposed program will provide for an increase in the amount and quality of industrially relevant research in plant science. Through the Midwest Plant Biotechnology Consortium approach, millions of corporate dollars will be expended to build on the investment of the federal government in targeted biotechnology research, resulting in highly competitive new products and new uses for existing crops.

The Consortium will provide better dialogue, cooperation, and joint effort between the industrial research community and the university research community. We expect to see corporate scientists working on university campuses, and university scientists working in corporations. This will result in better adaptation to commercial practice of the knowledge base and technologies that are developed, with a shorter time period from basic research to new product in the marketplace.

The Consortium will provide for improved and expanded pre-doctoral and post-doctoral training of U.S. citizens in plant biotechnology. It is anticipated that the five year research program proposed by the Consortium would result in the training of 700 additional graduate students and postdoctoral fellows in the new plant biotechnologies, addressing the acute manpower need predicted for plant biotechnology.

## NATIONAL ASSOCIATION OF STATE UNIVERSITIES AND LAND-GRANT COLLEGES

### STATEMENT OF DR. ROUSE CAFFEY, CHANCELLOR, LOUISIANA STATE UNIVERSITY AGRICULTURAL CENTER, AND CHAIRMAN, FISCAL YEAR 1989 BUDGET COMMITTEE FOR NASULGC

ACCOMPANIED BY:

DR. ZERLE CARPENTER, DIRECTOR, TEXAS AG., EXTENSION SERVICE

DR. FRED HARRISON, ADMINISTRATOR/DIRECTOR, COOPERATIVE EXTENSION PROGRAM, FT. VALLEY STATE COLLEGE, GA

DR. HOWARD MASSEY, DIRECTOR, INTERNATIONAL DEVELOPMENT, VA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

DR. BOBBY PHILLS, DEAN, AGRICULTURE, SOUTHERN UNIVERSITY, BATON ROUGE, LA

JOHN F. HOSNER, DIRECTOR, SCHOOL OF FORESTRY AND WILDLIFE RESOURCES, VPI AND STATE UNIVERSITY

Senator KASTEN. Our next panel represents the National Association of State Universities and Land-Grant Colleges. Mr. Caffey and others are welcome to come forward.

Dr. CAFFEY. Thank you, Senator Kasten, Chairman Burdick. I am Rouse Caffey, chancellor of Louisiana State University Agricultural Center, and my testimony today, though, is offered as chairman of the fiscal year 1989 budget for agriculture, the Division of Agriculture, the National Association of State Universities and Land-Grant Colleges. The National Association is composed of members of agriculture research, teaching and extension and includes representatives from both the 1862 Land-Grant Universities and the 1890 Universities.

I would like for the members of the committee to stand. They will be available for questions. Would you please stand at this point? And then during the course of the answer period, they will be available to you. The format of our budget was based upon the National Joint Council priorities. They had three cross-cutting objectives in eight high priorities. The highest of that was water quality.

Therefore, our budget recommendations to you are based on those programs, and we have put in the budgetary requirements to accomplish those. Essentially, what we have done, we want to achieve the national goals of maintaining profitability of competitiveness in U.S. agriculture while protecting the environment, conserving natural resources, and maintaining a viable rural America.

The funds that we are addressing to you today are those Federal funds which flow through the land-grant universities, through the Cooperative State Research Service, through the Federal Extension Service and the USDA Office of Higher Education.

The USDA budget which was released February 18 showed an increase for ARS, Agricultural Research Service, and a decrease for CSRS, Cooperative State Research Service, and a decrease for the Federal Extension Service.

We maintain that increases for all three are very important to the viability of U.S. agriculture. In identifying the priorities, we came to the conclusion there were three national issues, priorities, that needed to be addressed: Water quality, which is the overriding concern of all America, States and national, and recommended that through the land-grant universities, an input of $25 million would be put into research and $15 into extension.

Recognizing the national concern for food safety, we recommended a new initiative in food safety to enhance ongoing programs, dietary foods, safety in animals, health and so forth, and consistent with rural America and with the United States, family well being with an input in research and funds which have already been recommended.

Let me try to summarize just some of these items, because the testimonies are there, and we request that the testimonies be entered into the record for your consideration.

First, the former funds for the land-grant universities. That is the glue that holds us all together. ARS is centralized agriculture. We are the decentralized part. That means that we can work with the national priorities and the State initiatives, whether it be in the Dakotas or whether it be out in Louisiana or out in the West or in the East.

We believe that the increase for McIntire-Stennis funds is very much in order. Our forestry resources have gone altogether too long without being exploited to the maximum utilization of those areas, the Hatch funds for the research and the extension funds for our Extension Services; the 1890 University of Research and Extension, and we also concur with the executive budget on the competitive research grants.

You have recommended an increase or there has been an increase recommended. We concur. There are special research grants that are peculiar to the food of rural America and for America, in general. These are the continued national research programs. They are the new research programs. They are special program grants.

For example, one of those, and I will only address one of these to give an example, IPM, integrated pest management, was omitted from the recommended funding for next year. That is essential to the protection of our environment and also to the productivity of agriculture.

Extension of special programs. We are the envy of the world when it comes to the delivery of agricultural research to the user group. The Extension Service deserves the consideration of being recognized for funding those things which they uniquely can do. American extension is outstanding.

Higher education. No matter what our family farm stresses may be in crises, the human resources are very, very important. If we do not recruit and maintain intelligent young men and women in agriculture, by the year 2000, which is altogether too short, too few of years away, we will have a critical mass so that urban America will realize what has happened when the human resources are not recruited. We haven't done well in higher education. We have put altogether too little moneys there to recruit, maintain and develop programs for our young people.

In summary, I would like to point out that these recommendations are the result of a long and continued effort by the national association of state college and land-grant universities, with inputs from many people, organized over a long period of time. I see my light is on. I would tell you that my part of my committee are here, and we would receive your questions and, probably, I will direct those to who could answer them best.

Senator BURDICK. OK. Thank you.

Chancellor Caffey, yesterday, Robert Rodale of the Rodale Institute commented that water quality research was intricately related to low-input agriculture. Do you agree? Do you have any comments?

Dr. CAFFEY. Related to low input?

Senator BURDICK. Low-input agriculture.

Dr. CAFFEY. Sustainable agriculture? I guess it interacts with it all. This is when water quality would be interactive with all. I would like to recognize anyone from the committee who would like to make a comment. Zerle? This is Dr. Carpenter from Texas A&M.

Dr. CARPENTER. Mr. Chairman, the issue of water quality, low-input agriculture, regenerative agriculture, whatever it might be, there are a number of programs that interrelate with each other. Without question, as Dr. Caffey indicated, the integrated pest management program really is a low-input program. That is a program that has resulted in substantial reductions in the use of pesticides. That concept—that, too—is a low-input agricultural principle.

Certainly, water quality is related to some of our definitions of low-input agriculture. Whether that be sustainable or regenerative, without question, I would agree with your comments of Bob Rodale.

Senator BURDICK. The Rural Family Issues Coalition testified this morning that $12 million is needed for mental health counseling and clinical services for farm families. I notice our emphasis on the family well being takes a broader perspective. Would you care to comment further on your approach to family well being?

Dr. CAFFEY. Yes; we have recommended $2 million in research through the Cooperative State Research Service for that, and that would be with family stress, analysis and assistance, which touches on the subject that you just mentioned; economic alternatives and opportunities; alternative agricultural opportunities for farm families; training, managing new technologies enhanced with management capacity of households and the communities to respond to the new technologies.

Now, through the Extension Service, which works hand-in-hand with research, the Ag Experiment Station and Cooperative Extension Service and these universities, that has already been included, and we were with the Smith Lever 3(b) and (c) requests.

But it was to enhance programs in the family financial instability, children at risk, family disruption and dislocation and the responsibility for dependent elderly.

Were you referring to the 1440 funds that were now being used? Several States have access to those; others do not. I am not sure. But it is important, Mr. Chairman, it is very important, and we cannot fail to recognize it. Our committee addressed it as far as refunding requests in those areas, which I have just defined.

Senator BURDICK. Would your recommended food safety program be operated through the Expanded Food and Nutrition Education Program, EFNEP, through the 4-H or other projects?

Dr. CAFFEY. The food safety program would not be one of the EFNEP programs. It would be only tangentially operated through 4-H. It would be a research program which would identify those things so that we can quantify and get good scientific data that would be available, whether it be Salmonella or what-have-you that would cause people to be concerned about the food that they consume in animal health.

Would any of the committee like to comment? Yes, Zerle.

Dr. CARPENTER. Mr. Chairman, I might speak, again, to the food safety issue, and that related to the Expanded Food and Nutrition Education Program and food safety from the standpoint of household use in food safety is a part, now, of the Expanded Food and Nutrition Program, not only the ability to use those scarce resources for nutritional value, but the safety and handling of that food product for food safety is included in that arena.

Senator BURDICK. Thank you. Thank you very much. This concludes this portion of it.

Dr. CAFFEY. Thank you.

[The statements follow:]

## STATEMENT OF KAYE BRAATEN, MEMBER, COUNCIL FOR AGRICULTURAL RESEARCH, EXTENSION AND TEACHING

Mr. Chairman and Members of the Committee, my name is Kaye Braaten, a member of the Council for Agricultural Reserach, Extension and Teaching, more commonly known as "CARET".

CARET is a national organization of volunteer leaders from every state in the nation who are vitally concerned with agricultural sciences and education. Our CARET organization is closely associated with the National Association of State Universities and Land-Grant Colleges (NASULGC).

We are most grateful to you, Mr. Chairman, for providing the time and opportunity for us to appear before the subcommittee to present the views of the CARET organization, which has a vital interest in these programs.

Congress has enhanced agriculture in the past through its passage of the Morrill Act, Hatch Act and Smith-Lever Act, two of which had milestone anniversaries in the past year with the Smith-Lever Act celebrating its 75th anniversary next year. All of these congressional acts have markedly demonstrated striking symbols of partnership - the building and merging of institutions, government and education for the good of people. They have become woven into the fabric of American society because they hold strategic places as essential components of a real national security. In fact, the experience has indicated a real foundation for the strength of the national economic base.

The Agricultural Community has undergone a basic transformation over the past several years. Our capacity to remain competitive in a world economy has been greatly challenged, not only in agriculture, but in other areas of our nation's industry and commerce.

The essentials of our national strength in scientific capacity, including facilities, instrumentation, and expertise are not issues that receive popular support. We are well aware of the immediate problems and forces directed at budget deficits, trade imbalances, and financial stress of various sectors which overwhelm our political process and preclude adequate consideration of long term solutions for our research and development system.

The forces of instability on Agriculture have increased the demands on our research and education programs at a time when constraints of federal and state funding have seriously limited their capacity to respond. These financial constraints in the past several years have eliminated less effective programs, produced more effective efforts to meet current problems but at the same time it seems rather arbitrary to cut our research and extension programs when we are trying hard to remain competitive in a world that is dependent on new technology and its applications.

As a nation we have a tremendous stake in overcoming our current problems in world competition and we firmly believe, as our competing nations believe, that new technology is the only way to reinforce our strength in the world economy. American agriculture and forestry produce about 24 per cent of the total exported products of this nation and contribute in large measure to our balance of payments. With improvements in our technologies our farmers will be able to compete in global markets.

## Water Quality and Management

Water Quality and Management has become an urgent concern for the communities served by America's Land-Grant Colleges.

The Land-Grant Colleges have developed a national plan to address the water quality and quantity needs for the businesses and families in all counties of the United States. The goals of the national plan closely match the water quality guidelines of the Joint Council on Food and Agricultural Sciences which has named water quality as its highest priority for FY 1989.

This national plan of action is good for the country because of the following:

1. It relys on knowledge and education to protect our water quality.

2. It reaches into every county of our nation and shows people positive and practical solutions for site specific problems and circumstances.

3. It encourages and maintains local controls.

4. It builds on existing institutions instead of creating costly and burdensome bureaucracies.

5. It involves cooperation with the federal, state and local agencies.

6. Most of the funding for this plan is from state and local sources.

The funding request is for $25 million is CSRS for water quality research and $15 million in extension for water quality education.

## Future Economic Performance of American Agriculture Will be Determined by the Training of Our Youth

This nation's land-grant institutions must increase their efforts to recruit and retain outstanding students in our food and agricultural sciences. Unless this happens in short order, we as a nation will face a critical shortage of skilled men and women and further weakening of our already weak position in global markets. In the past, this nation was able to rely on its wealth of new scientific knowledge and its adaption on farms and ranches to enable us to compete successfully in world markets.

Today, we observe countries around the world increasing their research and education investments in Agricultural sciences and applying new technology as rapidly as possible. This has produced an international economic competitiveness which has become a widespread national concern.

It is crucial and most essential that we preserve our ability to lead the world in developing trained personnel. The world witnesses large swings in exchange rates and large flows of capital in and out of our country which have created significant shocks to our economy and a great deal of instability.

These problems strongly suggest need for rapid adjustments to the changing economic forces from abroad. The implications for the agricultural sciences and educational systems are challenging and provocative and we must increase our support for these efforts.

We must make serious efforts to help our students think creatively about American agriculture. To address these issues and to adequately manage our future investments and to meet these challenges.

Expanded investments to attract high-quality students and to revitalize instructional programs is imperative to our future. The U. S. Department of Agriculture Competitive Graduate Fellowship Program has had remarkable success in attracting scholars with increasing opportunities for women and minorities and should be expanded. A Competitive Challenge Grants Program which is both a public and private sponsored partnership will stimulate excellence in the undergraduate levels, foster additional regional programs and increase the quality of faculty and upgrade outmoded laboratory instruments. We fully support and encourage this committee to find ways to include the amounts requested by NASULGC for this national investment in our future.

## Conclusion

The Fiscal 1989 Budget Committee on NASULGC's Division of Agriculture followed a comprehensive, well coordinated planning process to address regional and national needs in food, agriculture and natural resources. We firmly believe that this budget document presented to this committee sets the stage for more innovative approaches to complex problems and that land-grant college coordinated team efforts will ensure common national goals. We are gratified by the new national initiatives and other special programs that are included to give cost effectiveness and efficient methods top priority in the use of public funds to build a better competitive position for U.S. agriculture.

We have been encouraged by these efforts to help maintain a profitable, competitive agriculture, while protecting our environment, conserving our valuable natural resources and maintaining a vital rural America.

The CARET organization fully recognizes that NASULGC's budget is an investment tha needs the support of Congress to insure the future of American agriculture. W sincerely urge that this committee carefully review the budget requests of NASULGC The CARET organization stands ready to work wiith you and the Congress to achieve ou mutual goals in agricultural sciences and education.

Mr. Chairman, this concludes my prepared remarks. I will be pleased to answer an questions or provide further information as you may desire.

# STATEMENT OF DR. CAROL L. ANDERSON, ASSOCIATE DIRECTOR, CORNELL COOPERATIVE EXTENSION

The family is the most effective and economical system for rearing children and nurturing adults. Strengthening American rural families so they can make better decisions, effectively manage their resources, access available services, become more self-confident and assume leadership roles is essential to rural America's future as well as the nation's.[1] Today's families are different from those we knew in years past. Structures vary and there is no "typical" family. Developing this human capital is both an investment and challenge.

Rural America is home to 63 million people. It is where they live and work. Family well-being, consisting of economic, social and physical factors, is a goal of all rural households. Economic well-being depends on an adequate income, purchasing power, and management skills. Physical well-being relates to health, diet and adequate housing. Social well-being is influenced by available community services, support networks and relationships among family members. Through research and educational programs, individuals, families and communities living in rural America can improve their lives and achieve their potential.

Rural America is more than agriculture and forestry. It's people with hopes, dreams and aspirations. It's youth trying to decide what they want to do and where they will live. It's home to adults and youth who want a satisfying job, to be well educated, healthy, living in a decent environment and secure in their family relationships.

The reality is that rural America experiences more unemployment and underemployment than other segments of this country. Rural citizens tend to have fewer years of formal education and more frequently live in substandard housing. Proportionately, more rural residents are poor. During the next decade, states considered rural are projected to have an increasing percentage of individuals 65 and over.[2]

The land-grant system has a rich history of conducting research and extending the results to address concerns of rural families. Issues of today's families are complex and the land-grant university is the institution that is helping make a difference. No one agency or organization can solve the issues. Bringing together key agencies and organizations with complementary missions and roles can help to bring about change and improve the quality of life. Home economics research and extension efforts are an investment in rural America and can play an important part in solving today's critical issues. Home economics is important to the well-being of the nation. As Montana Cooperative Extension Director Ausheim said many years ago, home economics addresses the problems that make grown men and women cry.[3]

Since 1980 some of the home economics research and extension programs have addressed the rural crisis. Men and women were willing to leave the farm, but they wanted to maintain the family. They sought research based knowledge to manage their limited resources, use the community services and reduce the family conflict and turmoil. Families sought help as they struggled with basic needs.

With self-confidence enhanced, they were able to make critical decisions and move ahead.

All 50 states and five territories support major research and extension programs in food, nutrition and health. Nutritional needs throughout life, the relationship of diet and health and food safety serve as the focus of programs.

Research [4] and extension [5] funds will be directed to the following issues.

FINANCIAL INSTABILITY

Employment opportunities, purchasing power, income and resource management skills affect the economic well-being of American families. **Research** is needed to:

. determine the cost/benefit of off-farm employment on available financial resources.
. expand community economic potential.
. examine influence of expansion or updating of the rural service sector on the family.
. document stress caused by or related to unemployment or underemployment and limited job skills. Determine factors which reduce stress effects on economic conditions.

**Extension** can help families:

. explore income generation alternatives.
. develop marketing outlets for products.
. gain control of their financial situation by effectively planning and managing resources.
. expand their skills in purchasing goods and services, including health care and housing.
. manage debt and develop savings habits.

DISRUPTION AND DISLOCATION

Loss of a family farm or business, a job, change in marital status, or the death of a family member are disruptive and stressful. Displaced farm families indicate that they must deal with emotional as well as financial turmoil. Rising rates of rural suicide, alcoholism and physical aggression are reflected in the increased numbers of runaway and abused farm children and spouses. **Research** is needed to:

. analyze family responses to stress resulting from social, economic and technological changes.
. determine effective coping strategies that contribute to individual, family and community well-being.
. identify key elements in the stages of decision-making relative to retraining, reinvesting and relocating.

**Extension can help families:**

- manage the stress associated with disruption and/or dislocation.
- make a successful transition to alternative employment, when appropriate.
- balance the responsibilities associated with work and family.
- become more adaptable, cohesive and better able to communicate needs, wants and goals.

## VULNERABLE YOUTH

Growing up is hard work regardless of where youth live. Today's youth live in a very different world from the one we each experienced. Substance abuse, teen pregnancy, suicide, school drop-out, and limited job skills are choices facing today's youth across this country. Research is needed to:

- examine occupational choices made by youth.
- examine approaches rural families use in socializing youth.
- examine alternatives for helping youth prepare for responsible and productive adult roles.
- analyze adolescent stress and depression related to feelings of conflict and loss.
- examine the effect of family structure on adolescent's feelings of alienation.
- examine integrating family and community goals related to a child/youth's development and improving educational performance.

Extension can help youth:

- set realistic goals for developing personal skills and abilities.
- become familiar with career choices associated with the food and fiber system.
- make difficult decisions in a supportive environment.

Extension can help parents of youth:

- improve communication, especially during the teen years when peers become increasingly important.
- develop realistic expectations and provide experiences to promote independence.
- become partners with the school and other community services and together contribute to the youth's development.
- build on the family's strengths and determine what is positive.

Extension can help communities:

- build coalitions to address the needs of families and help youth become self-sufficient adults.

## GROWING OLDER

Increased life expectancy is resulting in a record number of people 65 years and older. Most elderly people who have good health and adequate financial resources prefer to live independently and small towns have many older citizens living alone in a single family dwelling. If housing and service needs are met, most elderly can continue to remain independent. Research is needed to:

- clarify the contextual impact of rural and urban environments upon the quality of life of the elderly so that facility and service decisions can be made with factual information.
- analyze what is successful and satisfying retirement in rural America.
- clarify relationship of meaningful participation in community activities and mental and emotional health.
- determine how to better manage financial, social and health resources.

Extension can help adults:

- prepare financially for the later years.
- explore options for the transportation needs of the elderly living in rural America.
- be familiar with the available community services.
- prepare for the age-related events and processes associated with growing older such as diminution of social networks, reduction of income, and change in health.

## SAFE, WHOLESOME FOOD SUPPLY

Assuring the public of a safe, wholesome food supply is difficult. Consumers have limited criteria for evaluating the safety of available foods. Many people perceive food safety problems to be related to chemicals such as additives, pesticides and preservatives. Actually, microbiological contamination is a greater hazard. Research is needed to:

- develop more fail-safe procedures for maintaining microbiologically safe food during handling, processing, packaging and distribution.
- develop improved methods of food handling, storage and preparation at home.
- determine food preferences and develop products aligned with changing consumption patterns.

Extension can help:

- high risk groups including the elderly; women, children and infants; limited resource families; and adolescents make safe food decisions related to handling, storage and preparation.
- consumers use food preparation practices that retain or enhance nutrient quality.

These issues require the expertise of our most gifted students. If America's families are to have a fair chance of succeeding and remaining self-sufficient, research and extension must play a significant role. Investing in graduate students to work on these concerns is an investment in this country's future.

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## STATEMENT OF DR. ZERLE L. CARPENTER

In 1914, the United States Congress wisely created a network of county, state, and national governmental cooperators to help spread scientific agricultural information and assistance throughout America. That well-conceived educational structure, focused at the local level, is known as the Cooperative Extension System. Its basic mission, as stated in the Smith-Lever Act, is to improve American agriculture and strengthen America's families and communities through the dissemination and application of research-generated knowledge and demonstrated leadership development. For three-fourths of this century, Cooperative Extension has been extending research from the states' agricultural experiment stations, U. S. Department of Agriculture, and related scientific and technological businesses, agencies, and organizations. Cooperative Extension began because of Congress' vision for providing practical applications of science to meet human food and fiber needs. Cooperative Extension has helped generations of rural and non-farm citizens to learn, practice, and succeed by bringing useful science and technology from our universities and laboratories to their farms, families, and communities.

In the America of 1988, a divergent and evolving set of circumstances faces this Nation and its people. The Cooperative Extension System is being asked by citizens nationwide to provide world-respected leadership for tomorrow. The public seeks advances which enable Americans to keep the U. S. on the cutting edge of agricultural discoveries and improvements. The Cooperative Extension System is dynamic--change has occurred and will accelerate in the future. The Nationwide System has committed to focus on the National Initiatives developed through a comprehensive strategic planning process. These eight national initiatives are:

- Water Quality and Management
- Improving Nutrition, Diet and Health,
- Competitiveness and Profitability of American Agriculture
- Revitalizing Rural America
- Alternative Agricultural Opportunities
- Conservation and Management of Natural Resources
- Family and Economic Well-Being
- Building Human Capital

### BASE PROGRAMS

The Cooperative Extension System is made possible through the Federal, state, and local governments' partnership. Each partner shares in program decisions and funding commitments. The base program for Cooperative Extension work in the states is supported at the Federal level with Smith-Lever 3b and 3c funds. Also included in base program Federal support are Extension funding for the 1890 Institutions, District of Columbia Extension programming, and Federal Administration.

The strategic influence of Cooperative Extension education throughout America is in helping individuals, groups, and organizations to be self-helping. As a major resource for assisting every American to identify and utilize the findings of scientific research and technology, Cooperative Extension works in 3,150 U. S. counties. The transfer of technology from university and USDA laboratories to the fields, ranges, orchards, and homes of citizens is vital in rapidly changing times. Extension professionals are helping farm, ranch, and metropolitan residents better manage their pest control practices to reduce costs, improve food quality, and decrease environmental risks.

Cooperative Extension likewise is assisting food- and fiber-related businesses and industries to develop new and alternative products and marketing based on research developments. The Federal investment in Cooperative Extension also helps provide professionals throughout all states in responding promptly and effectively to critical problems affecting agriculture, the food system, and rural communities. Because Cooperative Extension is the educational arm of the U. S. Department of Agriculture, its outreaches in support of major conservation and protection efforts including the current Conservation Reserve Program and Endangered Species Act, are key to widespread understanding and compliance.

A major benefit of having Cooperative Extension offices in every county of the Nation is the response advantage to Federal officials in meeting emergency needs and devastating threats. Examples include violent weather consequences; rare disease or insect infestations; animal and crop losses due to unknown causes; and related dangers to fish, wildlife, and other rural populations. Cooperative Extension facilitates action of Federal, state, and local resources due to its extensive network of personnel, programs, and the nature of its educational mission.

Base program support also enables Cooperative Extension in every state and U. S. territory to train and cultivate volunteers to help work with targeted audiences. Nearly 3 million persons currently are enlisted in volunteer roles that assure successful Extension programming with diverse clientele of various ages, ethnic backgrounds, and residential locations. Without such development of volunteer talents and service to community under Cooperative Extension's guidance, the effects of economic stress and underdeveloped resources would be adversely felt throughout most of America.

In fulfilling its educational responsibilities, Cooperative Extension also presents program opportunities for persons interested in and affected by a wide range of policies, regulations, and guidelines disseminated by Federal, state, local, and other public or private concerns. Education related to critical issues varies greatly at different times and among the nation's regions, but includes profitability, diversification, labor, family concerns, pollution, property ownership, transportation, marketing, trade, and other items of agricultural and home management interest.

The base program funding levels requested for Smith-Lever 3b and c; for extension programming at the 1890 institutions and Tuskegee; for extension work in the District of Columbia; and for Federal administration are as follows:

| | |
|---|---|
| • Smith-Lever 3(b) & (c) | $252,000,000 |
| • 1890 Institutions and Tuskegee | 23,000,000 |
| • District of Columbia | 1,000,000 |
| • Federal Administration | 5,900,000 |

Included in increased funds for 3b and c are funding for the Federal Employee Retirement System; for intensified extension programming in Family and Economic Well Being; and for the area of human capital development.

## EXTENSION NATIONAL INITIATIVES AND SPECIAL PROGRAMS

### WATER QUALITY AND MANAGEMENT

Water quality and management are urgent concerns for the U. S. This Nation's health and well-being are directly dependent upon the successful management of our soil and water resource base. Both surface water and groundwater reservoirs are subject to depletion and/or deterioration if not well-managed and protected. They are absolutely essential for meeting the demand for food, fiber, and forest products, and to maintain human health. Some 34 states have identified agricultural nonpoint source pollution as a major problem. Twenty-nine states have cited pesticides and septic tank seepage as primary nonpoint sources of groundwater pollution. Competition from recreational, industrial, and municipal demands for water supplies, declining groundwater levels, deteriorating water quality--all reflect an array of serious problems which must be addressed promptly. In its request for $15,000,000 for "Water Quality and Management," the Cooperative Extension System is targeting four critical issues in this national initiative, namely:

- Public understanding of the nature and importance of water resources.
- The impacts of chemicals on the water supply.
- Water conservation measures.
- Community control of water quality.

## EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM (EFNEP)

Americans increasingly are aware of the importance that diet and nutrition play in preventing disease. Consumers need access to scientifically-tested and reliable information to help make informed choices about food purchasing, preparation, preservation, and consumption. The U. S. Department of Agriculture is the leading governmental agency for human nutrition, and the Cooperative Extension System has a major commitment to educate and disseminate research-based information to those audiences most in need of food and nutrition facts, including expectant mothers, young children, medical patients, high-risk individuals, plus the elderly. The Nation's 35 million people who daily live in poverty lack minimally adequate diets for their families. Without proper nutrition, resultant poor health, rising health care costs, inability to work or job absenteeism prevent the poor from rising above their conditions. Extension has been mandated to help low-income families acquire knowledge and skills needed to attain better nutrition in their homes. Extension's recommended budget of $60,000,000 will enable professionals and paraprofessionals to implement proven and newer methods for increasing adoption of sound food and nutritional practices among limited-resource audiences.

## IMPROVING NUTRITION, DIET, AND HEALTH

Both physical and emotional health are affected by dietary and nutritional factors. Eating habits have been found to be a major contributor to several chronic health problems including cardiovascular disease and cancer. Groups most in need of nutritional and dietary information often discover extravagant claims and contradictory evidence which confuse, rather than clarify alternatives. The Cooperative Extension System's network of state and local experts in food and nutrition help mobilize and support scientists' advice for the public. Extension-trained volunteers also assist professionals in disseminating reliable food, nutrition, and health research data to the public. The budget request for this important work in FY89 is $7,500,000.

## FOOD SAFETY EDUCATION

Some food scientists maintain that foodborne diseases pose a greater danger than chemical contamination. Mishandling of food so that it becomes a health hazard when consumed may happen during food processing, at the retail level, in food service establishments, or in the home. The Cooperative Extension

System, conducting programs for producers, consumers, processors, suppliers, and retailers of food products, assists the public to understand and practice research-proven methods of food safety. A budget request of $5,000,000 for this vital interest in FY89 is presented.

## COMPETITIVENESS AND PROFITABILITY OF AGRICULTURE

American agricultural producers operate in an economic environment noted for its relatively high costs and increased foreign competition. To regain a competitive edge in world markets, the costs of production must be lowered through application of cost-effective technologies incorporated into integrated systems. American agricultural technology is changing. Demands for assessment or reassessment will enable producers, once it is delivered, to maintain profitable operations. Profitability in American agriculture is necessary to ensure continuing supplies of food and fiber, and thereby assure Americans of continued prosperity at home and abroad. The Cooperative Extension network is developing systems of production and marketing with producers and agribusinesses that include domestic and foreign inputs along with macroeconomic considerations, trade laws, and technological advances coming through research. A budget request of $15,000,000 in FY89 is recommended.

## RURAL REVITALIZATION

America's rural communities rely upon a strong agricultural base, and are affected by economic stress in agricultural and other renewable natural resource based enterprises. Rural businesses, public facilities and services decline as the vitality of the Nation's agricultural and related economy suffer. Leadership at local and state levels are required to bolster and diversify local business and industry to help overcome farm unemployment. Alternative arrangements for transportation, housing, health, recreation, child care, and education must be established to meet family retraining and relocation needs. The Cooperative Extension System is well-positioned to help Americans reinvest in rural revitalization efforts. The urgency of national concerns about rural rebuilding has led to the FY89 budget request of $10,000,000.

## RURAL DEVELOPMENT CENTERS

Rural development centers have been prominent focal points in bringing America's nonmetropolitan needs and basic and applied scientists together. Their role in drawing resources together for study and action purposes to benefit nonmetropolitan residents have made them unique assets in technology transfer, and citizen and academic awareness of changing rural conditions in America. Their assistance in networking public and private, individuals and groups, in pursuit of lasting rural development accomplishments is helping keep 63,000,000 rural residents supplied with hope for their future. A budget request of $900,000 for FY89 is recommended.

## ALTERNATIVE AGRICULTURAL OPPORTUNITIES

To alleviate financial stress on America's agricultural producers, the Cooperative Extension System must work closely and effectively with research, business, and industry to locate more innovative uses of resources, ways of organizing, managing, and marketing agricultural products. Farmers, ranchers, and their families are seeking viable new markets, different crops, and natural resource applications for their livelihood. The Cooperative Extension System is working with local, state, and

Federal partners to expedite agricultural transitions to off-farm and other farm-related enterprises. Technology transfer on methods to sustain agricultural production with optimum or low inputs must be intensified. A FY89 budget request of $5,000,000 is recommended.

### NATIONAL PRIORITY INITIATIVES

Issues of critical importance to the American people are changing more rapidly than in the past. The Cooperative Extension System is attuning its programs to evolving priorities identified by public and private organizations. Because Extension responses to educational requests must be accurate and timely, the importance of program redirection is both difficult and costly. New policies, laws, regulations, and public emphasis areas demand such flexibility of Extension. To meet those challenges successfully, a FY89 budget request of $10,000,000 is recommended.

## OTHER SPECIAL PROGRAMS
## SMITH-LEVER 3 (d)

### INTEGRATED PEST MANAGEMENT

The Integrated Pest Management program is a systematic approach for delivering agricultural management technology to farmers and agribusiness. Each state's needs are targeted to provide transfer of the latest research that directly leads to increased agricultural profitability. Losses from agricultural pests may cost growers as much as one-third of total crop production. Pesticides are costly in dollars and environmental consequences. IPM Systems are transferred to reduce pest losses and pesticide use. Because of complicated pest infestation and adjustment factors, IPM has utilized computer decision making at the farm level to overcome pesticide resistance and improve environmental decision making. For FY89, a budget request in support of IPM totaling $7,500,000 is recommended.

### PESTICIDE IMPACT ASSESSMENT

U. S. agricultural production is heavily dependent on chemicals for protection against pests. Potential crop losses range from 25 to 50 percent of harvests. The American public wants economical and abundant agricultural products, but also seeks a safe, contaminate-free environment. Federal and state laws require all pesticides be reviewed and environmental impacts be considered by the Environmental Protection Agency and U. S. Department of agriculture scientists. The staffs of the Cooperative Extension System are instrumental in making the above review and control system for pesticides workable. A FY89 total of $2,580,000 is recommended for this budget request item.

### FINANCIAL MANAGEMENT

Net farm income in the U. S. declined about 50 percent between 1981 and 1983. At the same time, agricultural asset deflation was occurring, which created severe cash flow and debt management crises for heavily leveraged producers. High interest rates, heavy debt, weather damage, reduced exports, and level or declining commodity prices greatly exacerbated agricultural economic conditions. Medium-sized farms with annual sales of $40,000 to $200,000 were hardest hit. Extension works with farmers in financial difficulty to help analyze their operations, train them to achieve short- and long-range financial goals. The budget request for FY89 in support of Extension's helping agriculture toward financial recovery is $1,500,000.

### URBAN GARDENING

The urban gardening program enables metropolitan residents to grow their own fresh fruits and vegetables, thereby improving their self-reliance and out-of-pocket food costs. Community development and greater cooperation, as well as personal involvement in group goals result from urban gardening participation. Estimates from previous years indicate that $20 million in fruits and vegetables were grown in the urban gardening programs of Extension nationwide. Urban families, especially the young, elderly, and unemployed not currently engaged in gainful endeavors, are the primary audience for urban gardening. The FY89 budget request for this program is $3,329,000.

### FARM SAFETY

Over the last decade, an annual average of 1,800 rural Americans were fatally injured in farm or ranch accidents. Moreover, an estimated 180,000 disabling injuries and 1,800,000 mishaps serious enough to require medical attention also happen to farm or ranch residents. In most states, the funds here requested are the only comprehensive safety education support available for training against and prevention of rural sector tragedies. A FY89 budget request of $970,000 is recommended for farm safety.

### RENEWABLE RESOURCES EXTENSION ACT

America's natural resources are subject to depletion and deterioration if not carefully managed. The natural resource base is essential for meeting food, fiber, forest products, and enhanced quality of life for Americans. About 7.8 million private landowners control 58 percent of the nation's commercial forests. Grazing lands in the U. S. consist of 805 million acres of rangeland, 133 million acres of pastureland, and 65 million acres of grazed forest land. Together they comprise about one-half of the land area of the U. S. The RREA mandates that the Cooperative Extension System intensify educational programs aimed at stewardship of the Nation's renewable natural resources. It also facilitates productivity of these resources for national security purposes. The FY89 total budget request recommended is $6,000,000.

## STATEMENT OF ROBERT GAST, DIRECTOR, MICHIGAN AGRICULTURAL EXPERIMENT STATION

Mr. Chairman and members of the Committee, I am Robert Gast, Director of the Michigan Agricultural Experiment Station and Chairman of the Experiment Station Committee on Organization and Policy (ESCOP) FY'1989 Budget Subcommittee. It is an honor for me to have the opportunity of appearing before you today to testify on behalf of ESCOP and the State Agricultural Experiment Stations.

We are all aware of the many challenges facing American agriculture and rural communities today; decreasing prices and profitability associated with increasing global competition, coupled with a growing concern about adequate protection of our environment, preservation of our natural resources and maintaining a vital rural America. As a nation the the nature and level of our response will have many major impacts that will be with us for decades to come. Indeed, many decisions we make are not reversible. It is imperative that we understand our options and the consequences of these decisions,many of which will be made by default if we do not address them directly.

I will not dwell further on these challenges or issues for, I Believe that all of us here would agree on their importance and the need for urgency in addressing them in a timely and effective manner.

Rather, I believe that a principal question before us is the extent that these challenges need to be addressed through increased research and development in general and the role the State Agricultural Experiment Stations can and should play in meeting those research and development needs in particular.

I believe that we would also agree that differing aspects of the research and development efforts needed to serve American agriculture can best be met at the State and regional as well as the national level. However, there can be little doubt that the nature of many of these challenges are such that it is not only appropriate but essential that they be addressed through expanded research and development support at the federal level. We all recognize that the need for increased funding comes at a time when there are intense pressures on the federal budget. Obviously, difficult judgments and decisions will have to be made in allocating scarce federal funds, but it is essential that during this process we recognize the need to maintain a strong American agriculture and vital rural communities.

The State Agricultural Experiment Stations offer a unique and proven effective mechanism for helping meet the research and development needs of American agriculture at the national as well as the regional and local level. Working cooperatively with other federal agencies such as the USDA Agricultural Research Service, the Environmental Protection Agency, the Department of Energy, the National Science Foundation and others we can maintain a strong American agriculture and at the same time protect our environment, conserve our soil and water resources and revitalize our rural communities.

It is based on this kind of a challenge and strong federal partnership that the ESCOP Research Planning Subcommittee developed a comprehensive list of national research priorities for the Experiment Stations and identified the levels of increased federal funding needed to implement and carry out these research programs.

A copy of the FY 1989 ESCOP Budget Recommendations developed in recognition of these priorities and in response to the Presidents proposed funding levels for the Cooperative State Research Service (CSRS) are included with this testimony.

These recommendations are presented by budget authority to allow comparison with those presented by the President and were tempered to reflect the tight federal budget situation.

However, it is equally if not more important to point out that the majority of the requested resources would be targeted at the priority areas identified in the planning process I referred to earlier. Those priorities were grouped into the following six categories:

---Managing our Soil and Water Resources
---Keeping American Agriculture Competitive and Profitable
---Developing New Uses for Agriculture and Forest Products
---Increased Emphasis on Developing New and Expanded Markets
---Protecting consumer Health and Well-Being
---Strengthening the Rural Family and Community Social and Economic Base

As I indicated earlier, we are now making decisions we shall have to live with for decades. For example, in conflicts over international markets and trade and in the decline in the quality of rural community and family life, we face decisions that are often not reversible, and which will shape significantly the capacity and productivity of agriculture and rural life into the next century. It is urgent that we understand this. Once large areas decay into rural slums, reversing the process is extremely difficult and expensive. International markets once lost are difficult if not impossible to regain fully; rules of competition for trade once agreed to in international forums are not easily recast.

Declining groundwater quality is a subject of special concern to the entire country. Groundwater constitutes 86 percent of the total water resource in the contiguous U.S., is the source of drinking water for one-half of the U.S. population and the sole water supply for 95% of rural households. We must protect this natural resource. This budget is responsive to this urgent need.

Mr. Chairman, I could dwell at length on the nature and importance of each of these areas. However, I recognize that you and others are familiar with the issues involved and rather than take more of your time during these hearings, I stand ready to answer any questions you might have or provide any additional background information you might need.

## STATEMENT OF WILLIAM L. GEORGE, ASSOCIATE DEAN, UNIVERSITY OF ILLINOIS

### IN QUEST OF SCIENTIFIC EXCELLENCE

Agricultural science has historically been called the "First Science" of humanity--an identity which assumes even more profound meaning in today's complex, ever-changing world. Future challenges will indeed be great, requiring the combined efforts of highly educated, dedicated teachers and researchers in many agricultural and agriculture-related disciplines.

A competitive and profitable U.S. food and agricultural industry is dependent upon scientific and professional expertise. Investments in the educational and technical skills of the scientific labor force are as essential to economic growth and competitiveness as are investments in research facilities and equipment. Recognizing these critical and growing needs, the following FY 89 higher education initiatives are recommended in the USDA Cooperative State Research Service budget to enhance scientific and professional expertise development.

* **Competitive Graduate Training Grants (Fellowships) - $10 m.** The USDA Competitive Graduate Fellowship program is exceptionally successful in attracting excellent scholars including women and minorities into areas of demonstrated national need. The program needs $10 m per year to support 200 new fellows annually in the high priority areas of: Biotechnology, Bioprocessing/Food Engineering, Food Science/Human Nutrition, Marketing of Food and Forest Products, and Water Science.

* **Competitive Challenge Grants - $10 m.** The quality of higher education institutions and their programs must also be enhanced if they are to produce the needed topnotch graduates. A competitive challenge grants program--a public/private sector partnership--to raise funding levels on a matching basis needs to be established to stimulate excellence in undergraduate education, to increase the quality of faculty, and to upgrade laboratory instrumentation.

Members of Congress are especially commended for their wisdom in establishing the National Needs Graduate Fellowship (Training Grants) Program in 1984 to attract distinctly superior graduate students to the food and agricultural sciences. Doctoral fellows in this program have Graduate Record Examination (GRE) scores which are 300 points higher than the average doctoral students in agriculture or health science disciplines.

Faculty will compete for grants to upgrade educational programs. All Federal grants awarded to faculty in the Competitive Challenge Grants Program will require the recipient to match the award with funds from local and private sources. Therefore, a $10 m Federal investment will generate a minimum of $20 m for revitalization and improvement of agricultural science and business higher education programs.

* **1890 Strengthening Grants - $2 m.** The strengthening grants program will provide funds to each 1890 College, Tuskegee University, and the University of the District of Columbia to revitalize teaching programs in the areas of faculty recruitment and retention, library enhancement, and instructional equipment modernization.

### WHY IS A FEDERAL INVESTMENT NEEDED?

* An efficient food system is strategically important to our Nation's wealth and survival. No nation has maintained a position of world leadership without an efficient and competitive agriculture.

* The requisite human resources to manage and improve the U.S. food system in future years are not being produced. A 1986 U.S. Department of Agriculture report, "Employment Opportunities For College Graduates in the Food and Agricultural Sciences," projects a 17 percent average annual shortfall of qualified food and agricultural scientists and a 16 percent shortage of agribusiness marketing and financial specialists through 1990.

* A more efficient and competitive U.S. agricultural and natural resource system will require high quality human resources. "Agriculture is not attracting enough of the brightest undergraduate and graduate students. Moreover, agriculture's ability to attract such students will probably not improve without incentives and initiatives backed by sufficient funds." This conclusion is presented in a 1988 National Research Council report entitled, "Educating the Next Generation of Agricultural Scientists."

* U.S. colleges of agriculture and natural resources have redirected rapidly shrinking resources to priority programs and have quadrupled student scholarship support since 1980. However, these efforts have not been successful in producing the requisite human resources. During the past decade, undergraduate student enrollment in U.S. colleges of agriculture and natural resources has declined by 38 percent from 91,774 to 57,110.

Clearly, there are not enough students enrolled to meet the forthcoming agricultural business and science needs. Graduate degree programs in the food and agricultural sciences are very seriously threatened by the plummeting undergraduate enrollments. It is quite evident that the agricultural and natural resource colleges need additional help to produce requisite human resources.

* Positive and consistent signals must be provided to students and faculty. Individuals want to be successful and be involved in professions which are important to the National agenda. Mixed Federal signals have seriously undermined the development of priority human resources in agricultural science and business disciplines.

In 1984, the U.S. Congress established the Competitive Graduate Training Grants (Fellowship) Program to help recruit excellent students to priority agricultural science and business graduate degree programs. The program has been extraordinarily successful in attracting students of top 10 percent quality. However, the lead Federal agency for higher education programs in agriculture—the U.S. Department of Agriculture—has requested Congress to discontinue this program in each of its executive budget requests of FY 1985-89.

During the past five years, the U.S. Department of Agriculture has projected a 17 percent annual shortfall of qualified food and agricultural scientists through 1990. During the same time, it has asked Congress to eliminate 80 percent of the Federal appropriations for agricultural higher education programs which produce the vast majority of needed scientists.

* The U.S. Joint Council on the Food and Agricultural Sciences was established by the U.S. Congress to advise the Secretary of Agriculture regarding national science and education priorities.

For FY 1989, the council listed the development of scientific knowledge and expertise as the third-highest priority of the eight presented to the Secretary of Agriculture. The council stated:

"The continuing development of human capital is critical to the continued success of the Nation's food and agricultural system. Expertise in the agricultural and complementary sciences is of paramount importance if the United States is to regain leadership and a competitive edge in the world economy. To meet this challenge, greater efforts are needed to attract and retain quality students in the food and agricultural sciences, curriculums and faculty need to be improved, and better information and dissemination on career opportunities is urgently needed."

## STATEMENT OF FRED HARRISON, JR.

MR. CHAIRMAN AND MEMBERS OF YOUR COMMITTEE, I AM FRED HARRISON, JR., ADMINISTRATOR AND DIRECTOR OF THE COOPERATIVE EXTENSION PROGRAM AT THE FORT VALLEY STATE COLLEGE IN THE GREAT STATE OF GEORGIA. AND, I AM A MEMBER OF THE DIVISION OF AGRICULTURE BUDGET COMMITTEE REPRESENTING THE 1890 "LAND-GRANT" INSTITUTIONS AND TUSKEGEE UNIVERSITY.

I, AS A PUBLIC SERVANT, CONSIDER IT A MOST HUMBLE PRIVILEGE TO HAVE THE OPPORTUNITY TO TESTIFY ON BEHALF OF NATIONAL COOPERATIVE EXTENSION SYSTEM WITH SPECIAL EMPHASIS ON THE 1890 (HISTORICALLY BLACK) "LAND-GRANT" INSTITUTIONS. MY REMARKS ARE FRAMED BY THE LIVING CREED OF EVERY COUNTY AGENT BACK HOME THAT EACH PERSON IN THIS ROOM REFERS TO AS "MY COUNTY AGENT", A CREED THAT STRESSES A BELIEF THAT EDUCATION IN WHICH HUMAN DEVELOPMENT IS AN ESSENTIAL PART IS BASIC IN STIMULATING INDIVIDUAL INITIATIVE, SELF-DETERMINATION AND LEADERSHIP; THAT THESE ARE THE KEY TO DEMOCRACY, AND THAT PEOPLE WHEN GIVEN FACTS THEY UNDERSTAND WILL ACT NOT ONLY IN THEIR OWN SELF-INTEREST BUT IN THE INTEREST

OF A GREATER SOCIETY. MY REMARKS WILL BE FOCUSED ON TWO PREVAILING ISSUES: (1) EQUITABLE LINE ITEM APPROPRIATIONS FOR THE 1890 EXTENSION PROGRAMS; AND (2) THE CONTINUATION OF FULL APPROPRIATIONS AS WAS AUTHORIZED IN SECTION 1416 OF THE **NATIONAL AGRICULTURAL RESEARCH, EXTENSION AND TEACHING ACT (THE FARM BILL) OF 1985** FOR 1890 EXTENSION FACILITIES.

LIKE MY COLLEAGUE DR. HAROLD BENSON OF KENTUCKY STATE UNIVERSITY WHO CAME BEFORE YOU LAST YEAR, I SHARE WITH YOU THAT THE **1977 AND 1981 FARM BILLS** AUTHORIZED APPROPRIATIONS FOR EXTENSION AT THE 1890 LAND-GRANT COLLEGES AND TUSKEGEE UNIVERSITY. THE FUNDING LEVEL FOR COOPERATIVE EXTENSION PROGRAMS AT THESE INSTITUTIONS WAS SET AT A PERCENTUM OF FORMULA FUNDING. SECTION 1415 OF THE **FOOD SECURITY ACT OF** 1985 EXTENDED AUTHORIZATION AND MANDATED APPROPRIATIONS FOR COOPERATIVE EXTENSION PROGRAMS AT THE LAND-GRANT INSTITUTIONS AS IDENTIFIED IN THE **SMITH-LEVER ACT** OF MAY 8, 1914. LIKEWISE, **PUBLIC LAW 99-198** (DECEMBER 23, 1985), SECTION 1416, DESCRIBED "THE INTENT OF CONGRESS TO ASSIST INSTITUTIONS ELIGIBLE TO RECEIVE FUNDS UNDER THE **ACT OF AUGUST 30, 1890** (26 STAT. 417, CHAPTER 841; 7 U.S.C. 321 ET SEQ.), INCLUDING TUSKEGEE INSTITUTE [UNIVERSITY] ..., IN THE

ACQUISITION AND IMPROVEMENT OF EXTENSION FACILITIES AND EQUIPMENT SO THAT ELIGIBLE INSTITUTIONS MAY PARTICIPATE FULLY WITH THE STATE COOPERATIVE EXTENSION SERVICE IN A BALANCED WAY IN MEETING THE EXTENSION NEEDS OF THE PEOPLE OF THEIR RESPECTIVE STATES."

"THERE WERE AUTHORIZED TO BE AN APPROPRIATION FOR CARRYING OUT THIS SECTION FOR EACH OF THE FISCAL YEARS ENDING SEPTEMBER 30, 1986, THROUGH SEPTEMBER 30, 1990, SUCH SUMS TO REMAIN AVAILABLE UNTIL EXPENDED."

MR. CHAIRMAN, I WANT TO THANK YOU AND YOUR COMMITTEE. YOU PROVIDED US SOME RELIEF LAST YEAR IN OUR LINE ITEM APPROPRIATION, AND YOU RECOGNIZED THE DIRE NEED FOR THE IMPROVEMENT OF FACILITIES ON OUR CAMPUSES. HOWEVER, WE STILL NEED YOUR HELP IN THESE TWO AREAS:

1. EQUITABLE APPROPRIATIONS FOR THE 1890 EXTENSION PROGRAMS; AND
2. CONTINUATION OF FULL APPROPRIATIONS FOR 1890 EXTENSION FACILITIES

AS OUR NATIONAL EXTENSION SYSTEM HAS EMBARKED ON A NEW, EXCITING VENTURE - A VENTURE THAT FOCUSES ON ISSUES CRITICAL TO THE ECONOMIC, SOCIAL, AND ENVIRONMENTAL PROGRESS OF AMERICANS, THE 1890 LAND-GRANT INSTITUTIONS

ACCEPT THEIR FULL PARTNERSHIP AND RESPONSIBILITY. THROUGH THE IDENTIFICATION OF EIGHT NATIONAL PRIORITY INITIATIVES, OUR NATIONAL SYSTEM HAS SIGNALED A CHANGE IN DIRECTION AND CREATED A NEW AGENDA TO ADDRESS THE FUTURE AND FORGE PATHWAYS TO THE 21st CENTURY. THESE INITIATIVES - ESSENTIAL TO THE WELL-BEING OF ALL CITIZENS WHO ARE FACED WITH THE PROBLEMS OF LIVING AND MAKING A LIVING ARE:

..COMPETETIVENESS AND PROFITABILITY OF AMERICAN AGRICULTURE

..ALTERNATIVE AGRICULTURAL OPPORTUNITIES

..WATER QUALITY

..CONSERVATION AND MANAGEMENT OF NATURAL RESOURCES

..REVITALIZING RURAL AMERICA

..IMPROVING NUTRITION, DIET AND HEALTH

..FAMILY AND ECONOMIC WELL-BEING

..BUILDING HUMAN CAPITAL

MR. CHAIRMAN, I BELIEVE IN OUR SYSTEM. AS A FOURTH GENERATION SOUTHERNER, I KNOW FIRST HAND THAT THE PROBLEMS ASSOCIATED WITH THE DECLINE OF RURAL COMMUNITIES, POVERTY, POOR NUTRITION AND HEALTH, THROWN AWAY HUMAN CAPITAL, AND THE FAILURE TO CONSERVE OUR NATURAL RESOURCES CAN BE SOLVED THROUGH EDUCATION -- EDUCATION PROVIDED THROUGH OUR EXTENSION AND LAND-GRANT COLLEGE AND UNIVERSITY SYSTEM.

TO YOU MR. CHAIRMAN, AND YOUR COMMITTEE, WE THANK YOU FOR ALL YOU HAVE DONE, AND FOR WHAT WE KNOW WE CAN COUNT ON YOU DOING IN THE FUTURE. IT HAS BEEN A PRIVILEGE TO BE HERE TODAY. AND, IF I MAY BE OF FURTHER ASSISTANCE, PLEASE ALLOW ME TO DO SO. THANK YOU!

## STATEMENT OF HOWARD MASSEY, JR.

Mr. Chairman and Members of the Committee, I am Howard Massey, Jr., Director of International Development at Virginia Polytechnic Institute and State University, and Past-Chairman of the Commission on International Agricultural Programs (CIAP) that now has developed into the International Committee on Organization and Policy (ICOP), Division of Agriculture, National Association of State Universities and Land-Grant Colleges. We appreciate this opportunity to testify on behalf of administrators of international agricultural programs. I will address myself specifically to programs administered by the USDA Office of International Cooperation and Development (OICD).

The Land-Grant universities work closely with OICD in the implementation of international agricultural activities, especially those dealing with less developed nations. The mechanism for cooperation is the International Science and Education Council (ISEC). The Council is an important coordinating and planning body comprised of representatives from the USDA and U.S. universities. ISEC draws its program funds from the budget area entitled Development, Planning and Analysis. We urge the committee to approve the $301,000 requested by OICD for this activity, which includes critical funding for the operations of ISEC.

Other OICD programs of concern to the universities include those identified as: Scientific Exchanges, International Research, and International Organizations. We support OICD's budget requests for these important programs and ask for the committees' support.

I now draw attention to two programs for which no funding was requested for 1989 by the Administration. These are programs which we feel are of great mutual benefit to the U.S. and the developing nations they involve:

1. **Middle Income Country Training:**

   This scholarship program, which was begun in 1984, is designed for agricultural scientists and administrators from middle-income countries--those countries which have graduated from eligibility for scholarships funded through the Agency for International Development (AID) and are beginning to reach an income level where they can become important cash customers for U.S. commodities and services. U.S. commodity trade groups have been actively involved in this program, assisting in the selection of recipients and in some support for the training, and view its continuation as important to fostering market potential.

We urge strongly that this program receive funding support of at least $1,500,000.

2. Scientific Activities Overseas (Foreign Currency Research) (+$1,500,000):

This program, which allowed OICD to purchase up to $2,500,000 in fiscal 1987, was cut to $1,500,000 last year, and should be continued at least at the current level. While the program began in 1958 utilizing foreign currencies generated by the sale of P.L. 480 commodities, it was later expanded to permit negotiations of new agreements with local currency payments because research results were producing significant benefits for U.S. agriculture. The program supports agricultural and forestry research on problems of mutual interest to the U.S. and participating countries. These scientific overseas activities are particularly important because of the ability to conduct research which would have been impossible in the U.S. because of biological, environmental or financial constraints. They have provided sources of valuable genetic variability, allowed U.S. scientists to study plant and animal disease outbreaks overseas, and produced new technology that has been transferred to the United States.

We urge that at least $1,500,000 be appropriated for this program.

Mister Chairman, members of the committee, that concludes my remarks. I shall be pleased to answer any questions you may have.

## STATEMENT OF ARNETT C. MACE, JR., DIRECTOR, SCHOOL OF FOREST RESOURCES AND CONSERVATION, UNIVERSITY OF FLORIDA

I am Arnett C. Mace, Jr., Director of the School of Forest Resources and Conservation at the University of Florida. This testimony is offered in my capacity as President of the National Association of Professional Forestry Schools and Colleges (NAPFSC). This organization represents 62 university-based, forestry research extension and instructional programs in the United States. We appreciate this opportunity to comment on budget proposals for forestry research and extension for FY 1989.

Federal appropriations are an essential part of university-based forestry research programs. McIntire-Stennis funds provide a stable base of support that is critical to maintaining the long-term productivity of these programs and vital to the education of future researchers and educators. The Forestry Competitive Grants Program emphasizes high priority, fundamental research needed to expand our knowledge base and to provide the foundation for future practical developments and economic gains.

For FY 1989, we urge support of the McIntire-Stennis program at $25 million and the Forestry Competitive Grants Program at $8.0 million. These funding levels are consistent with present research needs and opportunities and are recommended by the National Association of State Universities and Land Grant Colleges (NASULGC), the Experiment Station Council on Organization and Policy (ESCOP), and the National Forest Products Association (NFPA).

We also request that the Renewable Natural Resources Extension Act be funded, at a level of $6.0 million. Support provided under this Act funds technology transfer and educational activities which encourage and promote the useful application of research results.

These three items - the McIntire-Stennis program, Competitive Research Grants, and forestry extension supported through the Renewable Resources Extension Act - are mutually supportive. They interrelate synergistically to enable university-based scientists to develop and disseminate fundamental knowledge and practical technologies vital to the present and future management and utilization of the nation's forest resources.

Forestry research is a cooperative venture involving scientists from various state, federal and private organizations. Results of this research effort are impressive. They include:

- The development of improved planting stock which provide the 20-40 percent increase in growth rate and impressive gains in disease resistance and other desirable properties.
- Intensive management technologies which increase by 200 percent the productive potential of forest stands.
- An increase in the utilization efficiency of delivered wood to 96 percent, up from approximately 40 percent a few decades ago.
- New and improved products in manufacturing processes which have expanded markets while reducing energy costs and cost of compliance with environmental regulations.

These and many other accomplishments of similar importance have expanded the market horizons for wood-based materials, increased the available timber supply, and provided a better understanding of management systems appropriate for multiple use of forest lands for timber, wildlife and recreation. These accomplishments also include solid advances in our knowledge of the forest ecosystem and of the basic chemical, physical and biological forces which influence forest productivity.

The significance of this research program is closely tied to the importance of the forest resource to the economic and social well being of this country and its citizens. These benefits are primarily related to the production and processing of timber. The United States ranks first among nations of the world in industrial timber production. Forest-based industries employ 9 percent of the U. S. manufacturing labor force and account for 7.5 percent of value added by manufacturing. Forestry and forest products lead all the segments of the economy in employment, size of payroll, capital investment and number of industrial firms in many southern and western states. The growing and processing of timber provide the economic underpinning for hundreds of communities in all regions of this country.

There are good reasons to believe that forest products will become even more important in the future. Global demand for forest products is increasing. Consumption of paper and allied products is projected to increase 75 percent, wood-base panel products 55 percent, and solid products 25 percent during the next 15 years. This increase in demand coincides with diminishing wood supplies in many established wood producing countries. The United States is well positioned in terms of timber supply and manufacturing and transportation infrastructure to satisfy a major share of this increase in global demand. However, continued profitability of forest-based industries will require that the United States develop more efficient production and processing systems if it is to compete effectively in a growing international market where foreign competition is also increasing.

University-based forestry research is an important part of the collaborative research effort involving federal, state and industry personnel and resources. Schools and colleges of forestry have the expertise in-house to address a broad range of problems and opportunities related to the management and utilization of the forest resource and, because of their university affiliation, can tackle problems that require scientists from many disciplines. University scientists are not encumbered by proprietary interests, and hence have the flexibility to develop research programs which include projects having both a near-term and long range focus.

We are fully aware of the critical need to exercise fiscal restraint in light of the size of the federal deficit. It will take a high degree of leadership to deal responsibly with this issue while, at the same time, maintaining momentum in particularly important programs. We believe that our budget request represents one such program because of the returns provided by past research and the opportunity for additional returns from ongoing and proposed research.

We are very pleased with the support given to the McIntire-Stennis program in FY 1988. The $17.5 million appropriation approved by Congress erased in large part the losses in purchasing power sustained by this program during the past decade. However, this funding level falls short of the needs for an expanded research program to address complex emerging issues related to multiple use of the forest resource and to pursue opportunities to expand forest-based economic development. We respectfully request your consideration of our request for a FY 1989 funding level of $25 million.

We also request that this Committee support and appropriate level of funding for the Forestry Competitive Grants Program. This program is part of the research budget of the USDA-Forest Service, but the funds are managed by the Office of Grants and Program Systems. While the budget of the Forest Service is the responsibility of a different congressional subcommittee, we feel strongly enough about the importance of this program and the degree to which it complements the base program of formula funding to bring it to your attention. Funding for the Competitive Grants Program has declined from the initial level of $8.0 million in 1985 to $3.0 million this year. This reduction has occurred in spite of evidence that the program fills an important need in both Forest Service and university-based research and has been an unqualified success. The program has strong support from industry who is eligible to compete for these funds. We respectfully request that funding for this program be restored to the original level of $8.0 million.

Thank you for the opportunity to present our views on these important programs.

TABLE I: FUNDING AUTHORITIES
(Thousands of dollars)

| | FISCAL 1988 | FISCAL 1989 | |
|---|---|---|---|
| | | Executive Request | NASULGC Recommendations |
| **Research** | | | |
| Hatch Act | $155,545 | $155,545 | $168,922 |
| McIntire-Stennis Act | 17,500 | 12,975 | 25,000 |
| Evans-Allen Program | 23,333 | 25,333 | 25,333 |
| Animal Health (Section 1433) | 5,476 | -0- | 5,947 |
| Research Grants (P.L. 89-106) | | | |
| Competitive Grants (Sec. 2b) * | 42,372 | 54,500 | 54,500 |
| Special Grants (Sec. 2c) * | 31,185 | 4,977 | 63,935 |
| Rangeland (P.L. 95-113) | 475 | -0- | 475 |
| Critical Materials (P.L. 98-284) | 4,918 | 668 | 668 |
| Aquaculture Centers (P.L. 95-113) | 3,500 | -0- | 3,500 |
| Agric. Productivity (P.L. 99-198) | 3,900 | -0- | 3,900 |
| Supp. & Alt. Crops (P.L. 95-113) | 675 | 391 | 391 |
| Federal Administration | 4,094 | 1,100 | 1,100 |
| Total Research | $292,973 | $255,489 | $353,671 |
| **Extension** | | | |
| Smith-Lever | | | |
| Formula | $241,594 | $228,483 | $252,000 |
| Special Programs * | 77,458 | 46,691 | 147,676 |
| D.C. Extension | 935 | 970 | 1,000 |
| Evans-Allen Program | 18,291 | 18,291 | 23,000 |
| 1890 Facilities | 9,508 | -0- | 10,000 |
| Renewable Resources Extension | 2,765 | -0- | 6,000 |
| Federal Administration | 7,412 | 5,107 | 5,900 |
| Total Extension | $357,963 | $299,542 | $445,576 |
| **Higher Education** | | | |
| Graduate Training Grants | $ 2,852 | $ -0- | $ 10,000 |
| 1890 Strengthening Grants | 1,902 | 2,000 | 2,000 |
| Challenge Grants | -- | -- | 10,000 |
| Total Higher Education | $ 4,754 | $ 2,000 | $ 22,000 |

* See Table II for details

TABLE II: GRANTS AND SPECIAL PROGRAMS
(Thousands of dollars)

| | FISCAL 1988 | FISCAL 1989 | |
|---|---|---|---|
| | | Executive Request | NASULGC Recommendations |
| **Research Grants P.L. 89-106** | | | |
| **Competitive Grants (Sec. 2b)** | | | |
| Biotechnology | $ 19,016 | $ 21,616 | $ 21,616 |
| Plant Sciences | 12,126 | 12,126 | 12,126 |
| Animal Sciences | 6,000 | 7,000 | 7,000 |
| Pest Science | 2,853 | -0- | -0- |
| Human Nutrition | 2,377 | 3,000 | 3,000 |
| Stratospheric Ozone | -- | 7,400 | 7,400 |
| Plant Science Centers | -- | 3,358 | 3,358 |
| Subtotal | $ 42,372 | $ 54,500 | $ 54,500 |
| **Special Grants (Sec. 2c)** | | | |
| CONTINUING NATIONAL RESEARCH PROGRAMS | | | |
| Integrated Pest Management | $ 2,940 | $ -0- | $ 2,940 |
| Minor Use Pesticide Clearance | 1,369 | 1,369 | 1,369 |
| Minor Use Animal Drugs | 229 | 229 | 229 |
| Pesticide Impact Assessment | 1,968 | 2,468 | 2,468 |
| Rural Development Centers | 475 | -0- | 475 |
| Animal Health (Sec. 1414) | 5,705 | -0- | 5,705 |
| Aquaculture Research General | 660 | -0- | 660 |
| Tropical and Subtropical | 3,091 | -0- | 3,091 |
| Acid Precipitation | 661 | 661 | 661 |
| Biological Impact Assessment | -- | 250 | 250 |
| NEW NATIONAL RESEARCH INITIATIVES | | | |
| Water Quality | -- | -- | 25,000 |
| Family Well-Being | -- | -- | 2,000 |
| Food Safety | -- | -- | 5,000 |
| SPECIAL PROBLEM GRANTS * | 14,087 | -0- | 14,087 |
| Subtotal | $ 31,185 | $ 4,977 | $ 63,935 |
| Total Research Grants & Special Programs | $ 73,557 | $ 59,477 | $118,435 |

* Numerous special problem grants are established to address acute situations in specific states.

TABLE II: GRANTS AND SPECIAL PROGRAMS (Continued)
(Thousands of dollars)

| | FISCAL 1988 | FISCAL 1989 | |
|---|---|---|---|
| | | Executive Request | NASULGC Recommendations |
| **Extension Special Programs** | | | |
| NATIONAL INITIATIVES | | | |
| **Water Quality & Management** | $ -- | $ -- | $ 15,000 |
| **Nutrition, Health & Food Safety Education Program** | | | |
| EFNED | 58,635 | 22,111 | 60,000 |
| Improving Nutrition, Diet & Health | -- | -- | 7,500 |
| Food Safety Education | -- | -- | 5,000 |
| **Competitiveness & Profitability of Agriculture** | -- | 10,000 | 15,000 |
| **Revitalizing Rural America** | -- | 2,000 | 10,000 |
| Rural Development Centers | 903 | -0- | 900 |
| **Alternative Agricultural Opportunities** | -- | -- | 5,000 |
| **National Priority Initiatives (Competitive Grants)** | -- | 10,000 | 10,000 |
| Subtotal | $ 59,538 | $ 44,111 | $128,400 |
| OTHER SPECIAL PROGRAMS | | | |
| **Integrated Pest Management** | $ 7,164 | $ -0- | $ 7,500 |
| **Pesticide Impact Assessment** | 1,633 | 2,580 | 2,580 |
| **Financial Management** | 1,427 | -0- | 1,500 |
| **Urban Gardening** | 3,329 | -0- | 3,329 |
| **Farm Safety** | 970 | -0- | 970 |
| **Counseling (Sec. 1440)** | 3,350 | -0- | 3,350 |
| **IRM** | 47 | -0- | 47 |
| Subtotal | $ 17,920 | $ 2,580 | $ 19,276 |
| TOTAL | $ 77,458 | $ 46,691 | $147,676 |

## College of Agricultural Sciences

### STATEMENT OF DR. SAM E. CURL, DEAN, TEXAS TECH UNIVERSITY

ACCOMPANIED BY:

DR. ROBERT C. ALBIN, ASSOCIATE DEAN FOR RESEARCH

DR. DAVID E. KOEPPE, CHAIRMAN, DEPARTMENT OF PLANT AND SOIL SCIENCE AND ENTOMOLOGY, AND DIRECTOR, PLANT STRESS RESEARCH INSTITUTE, TEXAS TECH UNIVERSITY

Senator **Burdick**. Dr. Sam E. Curl, dean, College of Agricultural Sciences; Dr. Robert C. Albin, associate dean for research; Dr. David E. Koeppe, chairman, Department of Plant and Soil Science and Entomology, and director, Plant Stress Research Institute, Texas Tech University.

Have I got it all in there?

Dr. **Curl**. Yes, sir, Mr. Chairman. I am Sam Curl, dean of the College of Agricultural Sciences at Texas Tech University. With me today is Dr. David Koeppe, director of our Plant Stress Research Institute. We are most appreciative of the opportunity to appear before the committee today on behalf of urgently needed research in the area of plant stress and water conservation.

A cooperative research effort by the USDA ARS, Texas Tech University, and the Texas Agricultural Experiment Station to address this critical problem has been underway for almost a decade.

The Great Plains, as you are well aware, is one of the most intensely developed and highly productive agricultural regions of the United States. However, the vast Ogallala Aquifer, the major source of ground water for the region, is declining. Many wells in the southern part of the formation are going dry.

In addition, the escalating cost of energy required to lift the water in a number of areas has become prohibitive. The need is urgent for genetically improved crop varieties possessing more efficient stress tolerance and improved water use mechanisms and for the development of cultural practices for maximizing water use efficiency. Our Cooperative Research Program focuses on these objectives.

We have submitted an indepth statement for the record. Our past testimony has presented a comprehensive assessment of the problem and recommendations for what we are convinced is a viable and cost effective Federal-State cooperative research strategy for dealing with this complex agricultural problem facing the southern Great Plains in the semi-arid Southwest.

In fiscal year 1977, Congress appropriated $100,000 to initiate a feasibility study to determine the most appropriate program and location for the plant stress and water conservation laboratory initially identified in Senate Document 59. Congress has since appropriated $1.3 million to provide for the planning and design of the laboratory greenhouse complex in cooperation with Texas Tech University at Lubbock.

The architectural plans and specifications for the laboratory have been completed. A cooperative USDA ARS research unit is in place in Lubbock, occupying temporary space on the Texas Tech campus, and at the USDA ARS site north of Lubbock.

With the evolvement of three mature research thrusts involving 17 senior scientists located in six facilities up to 10 miles apart, the fragmentation of the research effort due to the lack of a central laboratory facility is, by far, our greatest problem. In fiscal year 1980, Congress appropriated $200,000 to initiate the basic research program.

Through your support, research program appropriations have been increased to the current level of $1.4 million for fiscal year 1988. We want to express our appreciation for your past support which has allowed us to develop the research program to its present level.

We recognize, Mr. Chairman, the critical fiscal restraints with which the committee must deal at this point in time. We believe, however, that this program and facility should be of top priority. This research represents a comprehensive investment in the future, which will help to avert an economic disaster in a number of States wherein a large and very significant portion of our present agricultural productive capacity is found.

The current research program is internationally recognized for its actions. We respectfully request the committee for fiscal year 1989 to increase the level of funding for the Cooperative Research Program in plant stress and water conservation, now in its 10th year, in the amount of $1 million over the current budget allocation for fiscal year 1988. This will provide for the addition of two much-needed complementary research thrusts, each funded at the level of $500,000.

We further request the committee to authorize funding for construction of the proposed plant stress and water conservation laboratory as planned on the site made available for a lease to USDA by the Board of Regents of Texas Tech University. The current ARS projection for cost of the laboratory as designed is $27 million.

Mr. Chairman and members of the Committee, we appreciate your support and your continuing interest in this extremely important and timely research program.

Thank you very much.

Senator BUMPERS [presiding]. Dean Curl, let me ask you just one question. You say that Tech is going to lease the land to the government on which this facility would be built at a cost of $27 million.

Dr. CURL. Yes, sir.

Senator BUMPERS. Who would pay for the equipment and the operation?

Dr. CURL. The equipment for the laboratory is basically included in that amount.

Senator BUMPERS. In the $27 million?

Dr. CURL. Yes, sir.

Senator BUMPERS. How about the cost of operating the lab?

Dr. CURL. The cost of operating the lab, we estimate now, when the program is in full force with a full complement of scientists, would be $5 to $6 million per year. We would be coming back for much of that support. Texas Tech, alone, currently puts $1.2 million in salaries and operating funds into the program. Texas Agricultural Experiment Station puts at least that much into the program.

Senator BUMPERS. Do you think Tech and the experiment station combined would be able to pay for half of the operating expense?

Dr. **Curl**. Counting salaries of people who are involved in the program and operating funds, I would say that it might approach that; it currently does. We are currently receiving $1.4 million, and I am confident that the two agencies together are putting considerably more money than that into it.

Senator **Bumpers**. What is the total budget for Texas Tech, do you know?

Dr. **Curl**. Total budget of the university?

Senator **Bumpers**. Not counting athletics.

Dr. **Curl**. All right. Close to $200 million per year, counting private funds.

Senator **Bumpers**. What is your enrollment there?

Dr. **Curl**. About 23,500.

Senator **Bumpers**. How long a term would this lease be for?

Dr. **Curl**. A 99-year lease is what we have.

Senator **Bumpers**. A 99-year lease?

Dr. **Curl**. yes.

Senator **Bumpers**. Well, it is an interesting concept, Dean Curl. I have been vaguely familiar with this proposal before today. I don't have to tell you what our budget constraints are here. Coming up with $27 million just out of the clear is not easy.

Dr. **Curl**. Yes, sir; I understand.

Senator **Bumpers**. I know how you anticipate these things with a great deal of enthusiasm, and I understand it. I have a lot of projects in my State I would like to get funded, too. I'm not trying to dampen your enthusiasm, I just want to point out that these things are all very difficult to fund under the budget constraints we are operating under.

Thank you very much for being with us.

Dr. **Curl**. Thank you very much.

[The statement follows:]

# STATEMENT OF DR. SAM E. CURL

## SUMMARY

USDA-ARS Plant Stress and Water Conservation Cooperative Research Program Funding and Proposed Construction of a Plant Stress and Water Conservation Laboratory in Cooperation with Texas Tech University and the Texas Agricultural Experiment Station.

ACTIONS TO DATE: In fiscal year 1977, Congress appropriated $100,000 to initiate a feasibility study to determine the most appropriate size, program and location for the Plant Stress and Water Conservation Laboratory initially identified in Senate Document 59. That feasibility study was delivered to the Congress in March, 1978. In FY 1979, Congress appropriated $800,000 to initiate planning for the research program and proposed facility in cooperation with Texas Tech University at Lubbock. In FY 1983, Congress appropriated $500,000 to complete planning for Phase II and to finalize all plans and cost estimates needed for construction of the proposed laboratory. The architectural plans and specifications for construction of the laboratory have been completed. A cooperative USDA-ARS research unit is in place in Lubbock occupying temporary space on the campus of Texas Tech University and at the USDA-ARS site north of Lubbock. In FY 1980, Congress appropriated $200,000 to initiate basic research. The Congress appropriated $400,000 for the research program for FY 1981, $450,000 in FY 1982, $750,000 in FY 1983, $750,000 in FY 1984, $900,000 in FY 1985, $1,150,000 in FY 1986, $1,150,000 in FY 1987, and $1,400,000 in FY 1988.

SPECIFIC ACTION REQUESTED OF THE COMMITTEE: It is proposed that Congress continue to recognize the urgency of the research indicated by appropriating funds at the level of $1,000,000 over the current budget allocation of $1,400,000 ($525,000 Base Funds plus $875,000 Formal Budget Funds). These funds are to be directed for cooperative research in plant stress and water conservation at Lubbock, Texas involving USDA-ARS, Texas Tech University and the Texas Agricultural Experiment Station. The funds will be used to increase the research effort and to provide support for a core of scientists which form the base for a more comprehensive plant stress and water conservation laboratory which has been planned at Lubbock, Texas.

We further request the Congress to appropriate funding in the amount of $27,000,000 for construction of the Plant Stress and Water Conservation Laboratory. These funds could be appropriated in phases. This laboratory would be constructed on a tract of land on the campus of Texas Tech University. The Board of Regents of Texas Tech University has authorized the lease of this land to the federal government for the purpose indicated. While recognizing the urgency for the reduced growth of federal spending, we believe the investment in this facility is one in which very visible and tangible benefits will be realized. The full thrust of the research program cannot be realized until the highly specialized facilities included in the laboratory are in place and ready for use by the scientists.

The proposed laboratory represents the central structure that will facilitate the molding together in a cohesive unit the now mature, individual research programs while serving as the focal point for linkages to the expertise in other programs at different locations, such as those in New Mexico and Oklahoma. Scientists throughout the world are recognizing the Plant Stress and Water Conservation Research Program at Lubbock as a Center for Excellence, and the program continues to grow. Formal working relationships have been established with the USDA-ARS Plant Gene Expression Center in California, the Southwest Consortium on Plant Genetics and Water Resources headquartered at New Mexico State University and the Los Alamos National Research Laboratory, and the Noble Foundation at Ardmore, Oklahoma.

## INTRODUCTION

Mr. Chairman, I greatly appreciate the opportunity to appear before the Committee today on behalf of continued support of agricultural research in the area of plant stress and water conservation. This vital research is encompassed in the comprehensive nationwide research mission of the U. S. Department of Agriculture-Agricultural Research Service (USDA-ARS). This intensified research program implements the recommendations of the Plant Stress and Soil Water Conservation feasibility study prepared by the USDA-ARS.

The background setting for the problem which the research program addresses is found in Senate Document 59, the feasibility study conducted by the Science and Education Administration of USDA in 1977, and the statement of Texas Tech University submitted for the record before this committee on March 26, 1979. We will not repeat this information, as we believe the record is replete with scientific and economic documentation prepared by a select committee which describes the conditions of the region and the research required to seek viable solutions to a complex set of critical problems confronting agriculture and natural resource conservation throughout the Great Plains, the semi-arid southwest and arid and semi-arid lands throughout the world. Water availability and quality continue to be limiting factors affecting the growth and cultivation of existing crop species. This underscores the urgent need for new cultural management systems and improved varieties of drought tolerant food and fiber crops for areas where non-rechargeable groundwater reserves are declining, energy costs are increasing, and natural precipitation--even though limited--could be used more efficiently.

The national thrust to seek out all viable strategies for conserving energy and water in agriculture has amplified the urgency to seek more water-use-efficient strains of plant materials and improved soil and water management practices. The need for a comprehensive, multidisciplinary, long-term basic science research program is obvious. Texas Tech University has taken the lead to work to develop a cooperative research program with the U. S. Department of Agriculture-Agricultural Research Service, the Texas Agricultural Experiment Station, agricultural colleges and universities throughout the region, agricultural producers, the agribusiness industry and private research organizations.

## BACKGROUND

The key planning events involving Texas Tech University which have taken place in conjunction with the development of the research program and laboratory to date are as follows:

1975-1976 Preliminary discussions with officials of the U. S. Department of Agriculture and members of the Congress.

1977-1978 Congress appropriated $100,000 for a feasibility study. The study team concluded that there was indeed an urgent need for a plant stress and water conservation research program and that Lubbock, Texas, was the ideal location for a laboratory facility. A later decision to locate the facility on the campus of Texas Tech University, in conjunction with the College of Agricultural Sciences, finalized the first major step in the development of the program.

1978-1979 Congress appropriated $800,000 for the preparation of a research program plan and architectural and engineering plans for the appropriate laboratory in which to carry out the proposed research. The structure will contain about 67,000 square feet of research space and will cost approximately $27,000,000. The facility contains space for twenty-two scientists, with accompanying greenhouses, headhouses, growth chambers and storage units.

The Science and Education Administration in August, 1979, transferred a USDA scientist (plant physiologist) to Lubbock, Texas, to serve as a cooperative scientist working with Texas Tech and Texas Agricultural Experiment Station scientists on environmental stress mechanisms in sorghum and cotton.

Texas Tech provides office and laboratory space, use of the library, computer and other University facilities as well as extending full faculty privileges to the USDA-ARS scientists.

1983-1984 Congress appropriated $500,000 for preparation of the architectural and engineering plans for Phase II of the laboratory, for review and finalization of all plans, and for development of final construction estimates.

1984-1985 Congress appropriated an additional $150,000 for support of the ongoing cooperative research program, bringing the total annual funding for the research program to $900,000 ($525,000 in Base Funds and $375,000 in Formal Budget Funds).

1985-1986 Congress appropriated an additional $250,000 for support of the ongoing cooperative research program, bringing the total annual funding for the research program to $1,150,000 ($525,000 in Base Funds and $625,000 in Formal Budget Funds).

1986-1987 Congress appropriated $1,150,000 ($525,000 in Base Funds and $625,000 in Formal Budget Funds) for support of the ongoing cooperative research program.

1987-1988 Congress appropriated an additional $250,000 for support of the ongoing cooperative research program, bringing the total annual program funding to $1,400,000 ($525,000 in Base Funds and $875,000 in Formal Budget Funds).

Funding of the Cooperative Plant Stress and Water Conservation Research Program

| Year | Base Funds | Formal Budget Funds | Congressional Add-on Funds | Total Funds |
|---|---|---|---|---|
| 1980 | $ -0- | $ -0- | $ 200,000 | $ 200,000 |
| 1981 | 200,000 | 100,000 | 100,000 | 400,000 |
| 1982 | 400,000 | 50,000 | -0- | 450,000 |
| 1983 | 525,000 | 225,000 | -0- | 750,000 |
| 1984 | 525,000 | 225,000 | -0- | 750,000 |
| 1985 | 525,000 | 225,000 | 150,000 | 900,000 |
| 1986 | 525,000 | 375,000 | 250,000 | 1,150,000 |
| 1987 | 525,000 | 375,000 | 250,000 | 1,150,000 |
| 1988 | 525,000 | 625,000 | 250,000 | 1,400,000 |
| REQUEST-1989 | 525,000 | 875,000 | 1,000,000 | 2,400,000 |

RESEARCH ACTIVITY TO DATE: Through FY 1988, Congress has appropriated a total of $5,650,000 for cooperative research in plant stress and water conservation. Scientists from USDA-ARS, Texas Tech University, and the Texas Agricultural Experiment Station have studies within the framework of the research program plan developed to guide the orderly, systematic and effective search for the information needed to solve the problems identified in this statement. The program is committed to understanding the basic principles of plant growth and development under conditions of water and thermal stress, and to use this knowledge to produce new crop varieties and management systems that minimize the impact of climatic extremes. More specifically, the program determines avoidance, tolerance, and survival mechanisms associated with plant growth and development under water and thermal stress; it relates these mechanisms to the dynamics of water and nutrient transport within the soil-plant-atmosphere continuum; it defines the extent of genetic variability of the mechanisms; and it develops screening techniques to find unique crop germplasm with stress resistant mechanisms. Research is designed to support the goals of the USDA/ARS by strongly interfacing the results of this program with other state and federal research programs, and with agricultural industries, by conducting the program in concert with the national USDA/ARS plan and under the overall leadership of the national program staff of USDA/ARS, and by concentrating research efforts toward improving the efficiency of crop production while conserving natural resources and maintaining water quality.

CURRENT ACTIVITIES: Three research thrusts that support the program mission have been initiated in accordance with plans established by a select committee at the time the program was initially conceptualized, and subsequently approved by the agencies committed to conducting the research. Research is being conducted in:

Climatology, Soil Science And Systems Research: Technology has been developed to measure root systems under field conditions. Research has shown that area-wide cotton yield decline in the Southern High Plains is associated with reduced fertility and irrigation inputs. A model has been developed and tested which separates plant transpiration for soil water evaporation. A cotton production system that integrates water, fertility, variety, and plant spacing has been developed and shown to improve cotton yields. Forage species and production systems have been identified that are highly adapted to semi-arid climates.

Genetics And Plant Breeding: Cotton, wheat, oilseed, sorghum, and forage germplasm is being evaluated for improved water use efficiency and enhanced rooting systems. Variability in the production of heat shock proteins as a response of wheat germplasm to thermal stress has been identified. Studies on guar and sunflowers have shown their adaptation to a wide range of climatic extremes. Genetic differences in the photosynthetic rates of sorghum have been identified and related to improvements in water use efficiency. Seedling establishment has been shown to be associated with a root growth-temperature interaction in forage species.

Biochemistry And Physiology: The impact of enzyme kinetics as related to thermal stress and the synthesis of heat shock proteins has been defined. Researchers have shown that enzyme efficiency is related to the indigenous origin of crop germplasm and crops have a very narrow temperature optimum.

Results from the initial studies are exceptionally encouraging. This work has been conducted using existing Texas Tech University, USDA/ARS and Texas Agricultural Experiment Station space and facilities. This represents a substantial effort and demonstrates very efficient use of the federal and state funds expended. Essentially every state in the Great Plains has devoted some scientific effort toward developing technology to conserve our water resources and utilize that water which is available more efficiently in crop production. The current aggregation of scientists, the large environmental differences between research locations, and the diversity of plant responses elicited by water stress support the need for new programs (biotechnology and plant nutrition). To accomplish this effort will require additional funding, scientists and a highly specialized research facility.

With additional funds appropriated by the Congress, the cooperative research program developed by the U. S. Department of Agriculture-Agricultural Research Service, the College of Agricultural Sciences at Texas Tech University, and the Texas Agricultural Experiment Station will continue to mature and grow to fruition.

MAJOR BENEFITS OF THE RESEARCH PROGRAM: 1) Substantial reduction in the water and energy requirements for the production of quality food and fiber crops throughout the semi-arid southwest; 2) development of germplasm of major grain and fiber crops which possesses superior resistance to adverse environmental conditions and yet maintains an inherent high yield potential; 3) development of the basic principles essential for the design of soil and crop management systems to conserve and make available during the growing season greater amounts of water and to enhance the production of more stress-tolerant plants; 4) maintenance of a high level of agricultural production throughout the Southern Great Plains, thereby preventing (a) the reduction of economic return of an important, highly-developed agricultural region and (b) the attendant economic, social and environmental problems which would ensue; and 5) a substantial contribution to the national effort to enhance the productivity of American agriculture, thereby increasing the availability of feed grain and natural fiber commodities for sale to foreign markets.

As water efficiency of the key commodity plants is increased through the research program, less irrigation water per unit of crop yield will be required. Each inch of natural precipitation captured and stored in the soil will be used more efficiently. By substantially reducing the need for irrigation water, fuel and labor costs associated with irrigation will be decreased. If the plants perform under dryland conditions at a higher level of efficiency, the farmer's net earnings, assuming reasonable commodity prices, should be favorable. It is projected that research advances encompassed by this program result in a minimum 15% increase in water use efficiency.

THE PROPOSED LABORATORY: The feasibility study conducted by USDA recommended that a major research effort consisting of a central laboratory and support facilities be located on the campus of Texas Tech University. Three primary research thrusts have been outlined for the Plant Stress and Water Conservation Research Laboratory with specific objectives defined for each thrust: 1) to characterize the dynamics of the soil-plant-atmosphere continuum, 2) to define environmental stress impact on growth, development and yield, and mechanisms which aid plants in tolerating or avoiding environmental stress, and 3) to define genetic control of stress mechanisms.

## CONCLUSION

The research program and proposed laboratory, as specified by a select team of U. S. scientists who were experts in the research areas of plant stress and water conservation, require a number of disciplinary teams in areas such as soil physics, soil chemistry, soil classification, plant physiology, plant breeding, agricultural engineering, and other allied areas requiring individual scientist input. This level of activity allows effective and efficient research activity to focus on critical questions relating to problems of plant stress and water conservation. Because of the complexity of the proposed research, and the resources needed to solve these pressing problems, these programs are of long-term nature. The program has come to be recognized internationally for its basic plant stress and water conservation research in agriculture. The University is in a position to invite private industry scientists and research support to join the activity. Technical relationships have been established with the USDA-ARS Plant Gene Expression Center in California, the Southwest Consortium on Plant Genetics and Water Resources headquartered at New Mexico State University and the Los Alamos National Research Laboratory, and the Noble Foundation in Oklahoma.

Congress, in FY 1977, appropriated $100,000 to initiate a feasibility study to determine the most appropriate size, program and location for the Plant Stress and Water Conservation Laboratory initially identified in Senate Document 59. That feasibility study was delivered to the Congress in March, 1978. In FY 1979, Congress appropriated $800,000 to initiate planning for the research program and proposed facility in cooperation with Texas Tech University at Lubbock. In FY 1983, Congress appropriated $500,000 to complete planning for Phase II. Near final architectural plans and specifications and cost estimates for the proposed laboratory have been delivered to the USDA-ARS. In fiscal years 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, and 1988, Congress appropriated $200,000, $400,000, $450,000, $750,000, $750,000, $900,000, $1,150,000, $1,150,000, and $1,400,000, respectively, for cooperative research in plant stress and water conservation.

It is proposed that Congress continue to recognize the urgency of the research program by appropriating funds at the level of $1,000,000 over the current budget allocation of $1,400,000 ($525,000 Base Funds plus $875,000 Formal Budget Funds) for this project to continue and strengthen the cooperative plant stress and water conservation research program. This will bring the total research funding for FY 1989 to $2,400,000. It is further requested that the Congress appropriate $27,000,000 for the construction of the Plant Stress and Water Conservation Laboratory in FY 1989 on the land provided by Texas Tech University.

Thank you Mr. Chairman, for your consideration of this proposal.

# PLANT STRESS AND WATER CONSERVATION LABORATORY
# COLLEGE OF AGRICULTURAL SCIENCES - TEXAS TECH UNIVERSITY
# LUBBOCK, TEXAS Fact Sheet 1988

## BUDGET REQUEST FOR FISCAL YEAR 1989

The plant stress and water conservation research (PSWC) program at Texas Tech University is a cooperative venture between the College of Agricultural Sciences at Texas Tech University, The U. S. Department of Agriculture/Agricultural Research Service and the Texas Agricultural Experiment Station. This research program has grown from the initial commitment of two scientists in 1979, to a present staff of 17 scientists receiving some, or all, of their research funding from the program. Each of these scientists is committed to solving water and temperature problems associated with crop production in arid and semi-arid regions of the United States. For fiscal year 1988, the annual operating budget is $1.4 million. At present, program supported scientists are conducting research at several locations, including renovated and temporary laboratories several miles from the Texas Tech campus. These facilities, and their location, limit scientist communication, the joint use of specialized-expensive equipment and laboratories, and total program productivity.

The appropriation request for fiscal year 1989, the tenth year of the PSWC program, emphasizes the need for program consolidation into a central laboratory on the Texas Tech Campus where optimal use can be made of the new laboratory facilities, and the support services provided by Texas Tech University. An appropriation of $27 million is requested for laboratory construction. Additional appropriations are requested to establish collateral research thrusts required to fulfill the overall goals of the PSWC Program. In fiscal year 1988, the program received an increased appropriation of $250,000

The requested funds for fiscal year 1989 are essential to the development of a PSWC Research Program that is dedicated to achieve its scientific goals, and their associated impact on the efficiency of crop production in arid/semi-arid and temperate/irrigated regions of the United States.

1989 APPROPRIATION REQUEST

| | |
|---|---|
| Existing FY1988 Budget | $1,400,000.00 |
| Establishment of a plant stress/molecular biology research thrust | $500,000.00 |
| Establishment of a plant stress/plant nutrition research thrust | $500,000.00 |
| Research laboratory construction | $27,000,000.00 |
| Total new program request | $1,000,000.00 |
| Laboratory construction request | $27,000,000.00 |

## BACKGROUND AND MISSION

The plant stress and water conservation research program is committed to understanding the basic principles of plant growth and development under conditions of thermal and water stress, and to use this knowledge to produce new crop varieties and management systems that minimize the impact of climatic extremes. More specifically, the program determines avoidance, tolerance, and survival mechanisms associated with plant growth and development under water and thermal stress; it relates these mechanisms to the dynamics of water and nutrient transport within the soil-plant-atmosphere continuum; it defines the extent of genetic variability of the mechanisms; and it develops screening techniques to find unique crop germplasm with stress resistant mechanism

Research is designed to support the goals of the Department of Agriculture by:

- Strongly interfacing the results of this program with other state and federal research programs, and with agricultural industries.
- Conducting the program in concert with the national USDA/ARS plan and under the overall leadership of the national program staff of USDA/ARS.
- Concentrating research efforts toward improving the efficiency of crop production while conserving natural resources and maintaining water quality.

## CURRENT ACTIVTIES

Three research thrusts that support the program mission have been initiated in accordance with plans established by a select committee at the time the program was initially conceptualized, and subsequently approved by the agencies committed to conducting the research.

Currently, research is being conducted in:

## BIOCHEMISTRY AND PHYSIOLOGY

Studies in this area have defined the impact of enzyme kinetics as related to thermal stress and the synthesis of heat shock proteins. Researchers have shown that enzyme efficiency is related to the indigenous origin of crop germplasm, that crops have a very narrow temperature optimum, and that plants use the physiological process of transpiration to maintain these desirable temperatures.

## GENETICS AND PLANT BREEDING

Currently, cotton, wheat, oilseed, sorghum, and forage germplasm is being evaluated for improved water use efficiency, and enhanced rooting systems have been identified and are being tested in current production systems. Variability in the production of heat shock proteins as a response of wheat germplasm to thermal stress has been identified. Studies on guar and sunflowers have shown their adaptation to a wide range of climatic extremes. Genetic differences in the photosynthetic rates of sorghum have been identified and related to improvements in water use efficiency. Seedling establishment has been shown to be associated with a root growth-temperature interaction in forage species.

## CLIMATOLOGY, SOIL SCIENCE AND SYSTEMS RESEARCH

Technology has been developed to measure root systems under field conditions. Research has shown that area-wide cotton yield decline in the southern High Plains is associated with reduced fertility and irrigation inputs. A model has been developed and tested which separates plant transpiration for soil water evaporation. A cotton production system that integrates water, fertility, variety, and plant spacing has been developed and shown to improve cotton yields. Forage species and production systems have been identified that are highly adapted to semi-arid climates.

## COOPERATING INSTITUTIONS

Scientists affiliated with the plant stress and water conservation program at Texas Tech University have close cooperative relationships with scientists from many other state, federal and private research institutions. These institutions include:

-The Plant Gene Expression Center, USDA/ARS, Albany, California

-Monsanto Company, St. Louis, Missouri

-Agracetus, Middleton, Wisconsin

-ROHM and HAAS Company, Pring House, Pennsylvania

-Cotton Incorporated, Raleigh, North Carolina

-Sungene Technologies Corporation, San Jose, California

-The Plant Genetic Engineering Laboratory, New Mexico State University, Las Cruces, New Mexico

-The Southern Regional Research Center, USDA/ARS, New Orleans, Louisiana

-The Southwest Consortium for Plant Genetics and Water Resources (University of Arizona, University of California-Riverside, Los Alamos National Laboratory, New Mexico State University, Texas Tech University)

-Conservation and Production Research Laboratory, USDA/ARS, Bushland, Texas

-Crop Production and Water Conservation Research Laboratory, USDA/ARS, Stillwater, Oklahoma

-Northern Great Plains Research Laboratory, USDA/ARS, Mandan, North Dakota

-Evapotranspiration Laboratory, Kansas State University, Manhattan, Kansas

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## National Center for Appropriate Technology

### STATEMENT OF ROBERT GRAY, POLICY CONSULTANT

### ACCOMPANIED BY JOSEPH F. SEDLAK, PRESIDENT

Senator **Bumpers**. Our next witness is Robert Gray, policy consultant for the National Center for Appropriate Technology.

Good afternoon and welcome. Please proceed, Mr. Gray.

Mr. **Gray**. Good afternoon. Thank you very much, Senator Bumpers. I would like to introduce the gentleman to my right, Joe Sedlak, president of the National Center for Appropriate Technology. I certainly appreciate the opportunity to testify today. I really would like, realizing that the time is limited, to make sure that both Mr. Sedlak's and my full content of our testimony is inserted in the record.

Senator **Bumpers**. They will be admitted.

Mr. **Gray**. I would also like to compliment you, Chairman Burdick, Senator Sasser, and all the members of this subcommittee, for the leadership you have shown over the last 2 years in setting up the ATTRA Program.

As you know, there has not been, in the past, a mechanism that would sort of be one-stop shopping where we could transfer the technology that we are learning on low input agriculture daily and get it as rapidly as we can to the farmers and to the county agents who can then use it.

The wisdom of this subcommittee in fiscal 1987 was to set up ATTRA with a $500,000 appropriation, the startup, and then for this fiscal year, we have received $750,000.

For fiscal 1989, we are requesting $1.5 million, and I would like to talk just a little bit. I think, given the limited time that you would be most interested in knowing who is using this system. We now have a track record. It has been operational for 9 months, and we have a good feel for the kinds of questions we are getting and who is asking those questions.

Just very briefly, of course, the purpose of the ATTRA program is to provide advice to farmers on lowering production input such as fertilizer, pesticides, fuel, and water and recommending more efficient management practices, including irrigation scheduling, crop and livestock diversification, soil conservation, and rotational cropping; also, helping rural communities learn more about developing businesses that complement a more diverse agricultural base; and in addition, recommending solutions to water, soil, and other land resource problems and providing information on innovative ways to reduce rural community infrastructure costs.

Just going very briefly to the kinds of questions, as a matter of fact, Senator Bumpers, in the back portion of my testimony, there are two charts which summarize this very well. The first one is a pie chart, and it breaks out the ATTRA cases by subject. I thought you would be most interested in that and interested in who is using it.

You will note the interest today, about this in the farming community, of course, is to look for diversified systems that they can then use to broaden their base in terms of their economic base. It is 36 percent of the questions coming into ATTRA today, and we have had 1,700 cases, since this program has started, just to give you an idea of how many people are interested in using this service.

The toll-free line, as you know, is set up in Memphis, TN. We started operations in mid-July of last year. I should have added that earlier. One of the biggest areas has been crop diversification and livestock alternatives. The second portion of that, which is related, 21 percent of the questions, are related to low input systems.

In other words, farmers are looking for ideas for diversifying their current systems and then looking for ways to reduce the inputs. As you look on down, of course, the other questions relate and the third thing that is related to that are marketing questions.

If you are going to diversify, if you are going to move to a low-input system, for example, if you are near an urban area and you are interested in specialty crop production, doing it on a low-input basis, you are also interested in a marketing capability and have to be before you could move into any kind of specialty crop.

Of them, approximately 10 or 11 percent of our questions involved community economic development. I would like to say at that point, we are not duplicating what the National Ag Library has set up in their Rural Information Center. We have been complementing their program, and we have been working very closely with the National Ag Library in terms of getting informational input and letting them know the kinds of questions we are getting in the rural area about rural communities and rural development.

Also, energy, water and waste management comprise 10 percent of our questions; and then biological control, which includes integrated pest management, is about 7 percent. So you can see rather quickly how these kinds of questions fit into the whole low input system. The thing that interests me most, of course, is who is going to use this system and, of course, it was designed for two major areas.

One is, we want to get as much information out to county agents since they have daily contacts with farmers. They can spread the information and technology much faster. Right at this point, 36 percent of our users are farmers, and over 15 percent are county agents.

Then you can see on the bar graph the additional spread of private organizations, businesses, universities and other governmental agencies that have used the system and used it very well. I think that I can see that the light is on, that my time is up.

I appreciate the opportunity to testify, and we feel that if ATTRA is given an appropriation of $1.5 million for fiscal 1989, we can do one important thing, and that is set up a data base which will allow us even greater access to all the low-input technology-applied research that is going on at all the land-grant universities, private organizations, and so forth. We, therefore, can make our responses more kindly to farmers and county agents.

I know you know that when a person calls, they can't wait, many times, 3 for 4 weeks for an answer. They may be making an economic decision, a financial decision to move on a particular crop or a particular application rate, a fertilizer or chemical(s). They need that information rather rapidly. That is one of the things ATTRA is endeavoring to do.

Again, thank you very much for the opportunity to testify, Senator Bumpers. I will be glad to answer any questions that you might have.

Senator **Bumpers**. Mr. Gray, what kind of a facility are you operating out of in Memphis?

Mr. **Gray**. We are leasing space, Senator, from the Agricenter, which is in Shelby County, and that was built by, I believe, Shelby County, and the city of Memphis. It is on a 1,000-acre farm. Actually, I guess the acreage is even larger, but there are 1,000 acres on that facility in Shelby County, and we lease space from Agricenter.

Senator **Bumpers**. How many personnel do you have there?

Mr. **Gray**. Right now, there are 10 technical staff and one administrative staffer on board. That has remained the same from the time that we hired the staff initially in the first year of operation.

Senator **Bumpers**. Do you have any regular mailers you send out?

Mr. **Gray**. We have a brochure. The other thing that we do, in order to keep county agents informed, is to initially send out a mailer to all county agents.

Senator **Bumpers**. Is that who you operate through, mainly? You just make sure that they know you are available and so on?

Mr. **Gray**. Also through the farm magazines and through the farm organizations, Senator. We are building up a mailing list on that, as well. We have had a number of articles and mailers out to farm organizations and articles in "Successful Farming," "Farm Journal," and so forth.

We give a report every 2 months to all the State directors of extension, so then they can also send that information on down to the county agents in terms of the kinds of questions we are getting, what the issues are, what it is the people calling are most interested in, so they have an idea. Then that gives the agent a better idea if he is getting those questions, and if he is having a difficult time coming up with the answers. He can call Agricenter, call ATTRA, and they can give him a hand.

Senator **Bumpers**. How much of your existing $850,000 annual budget is payroll?

Mr. **Gray**. Of the $850,000 budget, it would be, I would say, in the neighborhood—maybe Mr. Sedlak will help me on that.

Mr. **Sedlak**. Thanks.

Mr. **Gray**. About $700,000, I would say.

Mr. **Sedlak**. Yes.

Mr. **Gray**. We were just talking about that before we came up. The telephone system runs between $50,000 and $70,000; the rest is for rental, and so forth.

Senator **Bumpers**. Do you have an 800 line?

Mr. **Gray**. Yes, sir, 800 line.

Senator **Bumpers**. Is that where the bulk of your $50,000 expenditure is?

Mr. **Gray**. Yes; the 800 number is 800-346-9140, if anyone is interested.

Senator **Bumpers**. You anticipate establishing a data base that Extension Agents all over the country could plug into?

Mr. **Gray**. yes.

Senator **Bumpers**. From your offices?

Mr. **Gray**. That is our ultimate goal, Senator. What we would like is a data base.

Senator **Bumpers**. You can't do that on a $1.5 million program, can you?

Mr. **Gray**. The hardware costs, the technology in computers, of course, is changing rapidly, so for buying a hardware system now, the storage capacity is much greater. But the other thing that we are going to do, and we talked with Cooperative Extension about this, is we can tap into many other systems that we can then get access to without having to have all the storage in our facilities, so we can use key words and get that information.

Then, Extension agents from their own offices who have PC's can call ATTRA and can directly access this information, whether it is right there onsite in Memphis, or whether it is at another university or another location that is remote from Agricenter.

Senator **Bumpers**. OK. Mr. Gray, thank you very much for coming to be with us today. We appreciate your testimony.

Mr. **Gray**. Thank you very much.

[The statements follow:]

## STATEMENT OF ROBERT J. GRAY

Mr. Chairman, members of the Subcommittee, I am Robert J. Gray, a Policy Consultant for the National Center for Appropriate Technology. I appreciate the opportunity to testify today. I would like to follow-up on Joe Sedlak's testimony by being more specific about the types of questions the Appropriate Technology Transfer for Rural Areas Program (ATTRA) has been receiving, and also to briefly describe the ATTRA users.

As Mr. Sedlak mentioned in his testimony the ATTRA offices and toll-free telephone lines opened nine months ago with a staff of ten technical specialists. Since that time the staff has received more than 1,700 requests for technical information. Approximately 40 calls were received each week until December (1987), when the volume of calls increased to nearly 100 calls per week. The staff has been responding to these user requests quickly and efficiently, but the increased volume of calls has placed quite a burden on the small staff. Most of the calls ATTRA has received can be broken down into the following six subject areas (see attached chart):

- Crop Diversification and Livestock Alternatives (makes up 36% cases) - Questions in this category might include alternative and/or specialty crops, such as cut flowers and fruit and vegetable production in areas that traditionally grow commodity or cash grain crops. Specialty crops like mushrooms are another example of an alternative or additional crop that can be incorporated into existing farm practices without much investment. Livestock alternatives can include goat production for angora wool or for milk, lean beef production or aquaculture systems.

- Low-input Systems (21% of cases) - Users have requested information on crop rotations, alternatives to manufactured fertilizers, mechanical week control, green manures (or cover crops), and cultivation techniques.

- Other (15% of cases) - This category includes marketing, agroforestry, equipment and building construction, harvesting techniques, added value processing and home industries.

- Community Economic Development (11% of cases) - ATTRA provides information on cost-benefit analyses of organic versus conventional farming or commodity and non-commodity crops and alternative rural development strategies to diversity rural economies. Inquiries have also been made regarding funding sources for new equipment and community project development.

- Energy, Water and Waste Management (10% of cases) - Methane production from corn, soil conservation methods, groundwater protection, farm energy cost reductions, sewage treatment, on-farm sludge application, soil erosion effects, soil ph, water rights and irrigation are all topics of inquiry.

- Biological Control (7% of cases) - This includes all Integrated Pest Management and herbicide/insecticide resistance issues such as: sustainable methods for the control of lepidoptera pests, organic or low-spray fruit production, alternative techniques for fungus and mildew control, alternative production methods for grains, flowers and mushrooms to avoid chemical sprays, and methods of controlling nematodes without fumigation.

As you know the ATTRA Program is designed to collect and disseminate information on low-input agriculture and community resource management to farmers, extension agents and rural communities. The Impact of ATTRA can be measured in part by the number of people who have contacted the offices for information or assistance and the types of people who are using the program. The ATTRA cases by user type can be broken down into the following categories: (the attached chart shows this breakdown)

| | |
|---|---|
| - Farmers | 34.9% |
| - Non-farmers | 16.3% |
| - Local County Agents | 15.1% |
| - Businesses | 8.8% |
| - Private Organizations | 7.5% |
| - Universities | 5.5% |
| - USDA | 5.4% |
| - Other Government Agencies | 4.0% |
| - Miscellaneous | 2.5% |

This breakdown of users illustrates clearly that at this point farmers are the largest group of individuals utilizing this program. This is very gratifying to us since it demonstrates the value of the program to the most important constituency -- the farmer. Many more county agents are starting to utilize ATTRA as well, and since they deal directly with farmers every day it is important for them to have credible and timely information they can depend upon. As Joe Sedlak pointed out in his testimony, the Extension Service is planning to add a full-time liaison staff person at Agricenter to assist ATTRA's technical personnel. This will also help in expanding our communication and technical assistance to county agents across the country.

Mr. Chairman, I thought you and other members of the subcommittee might be interested in a few examples of the types of questions the ATTRA staff receives everyday. I therefore summarized some questions we received from individuals in Mississippi:

- A small grain farmer from North Dakota requested information on low-input agriculture and value-added processing of small grains.

- A farmer from Mississippi requested information regarding the funding of a new alternative crop. He was especially interested in a pilot project to demonstrate this crop to others.

- County Agent in North Dakota requests information on community resource management.

- A farmer inquired about the per acre costs for preparing land to be fallowed.

- A farmer in North Dakota requested information on diversifying his grain operation. He was interested in sheep production and perhaps vegetable and fruit production.

- A professor in Mississippi was looking for two or three sources of drip irrigation and hydroponic greenhouse suppliers.

- A hay producer in Mississippi wanted to know the feasibility of making alfalfa into pellets or other methods of harvesting alfalfa that reduce labor costs.

- A crop specialist from Mississippi wants Integrated Pest Management information for cotton production especially focusing on pesticide reduction. The specialist was also interested in nutrient management to reduce inputs and costs.

ATTRA sends the program users a one page evaluation form to fill out and rate the information and assistance they received. Ninety-two percent of the users rated the ATTRA services they received as Excellent or Good.

I know you are well aware that farmers and rural communities are facing huge economic problems due to farm foreclosures, failing farm-related businesses, high operating costs and a declining tax base. The ATTRA program helps farmers and farming communities meet these challenges by making available, through a centralized information system, the latest technological advances that will allow them to cut costs, slow or turn back environmental degradation problems and promote a stronger community economy. Cited below are a few examples of the areas of potential savings in which ATTRA could offer immediate, much-needed technical information to assist both farmers and rural communities in solving problems and reducing operation costs:

- more efficient application of fertilizer and lime could save up to $2 billion of the $9 billion spent nationally, and check the spread of groundwater contamination;

- another $2 billion could be saved by the use of integrated pest management, instead of total reliance on pesticides;

- a minimum of $180 million could be saved in rural communities with a population of less than 50,000 through the use of basic water conservation technologies;

- energy costs could be reduced by 10 - 20 percent in rural communities through street light changes, water conservation, sewage treatment plant renovations, and other energy conservation techniques.

New technological advances could positively affect nearly every aspect of rural problem areas, including soil erosion and water conservation.

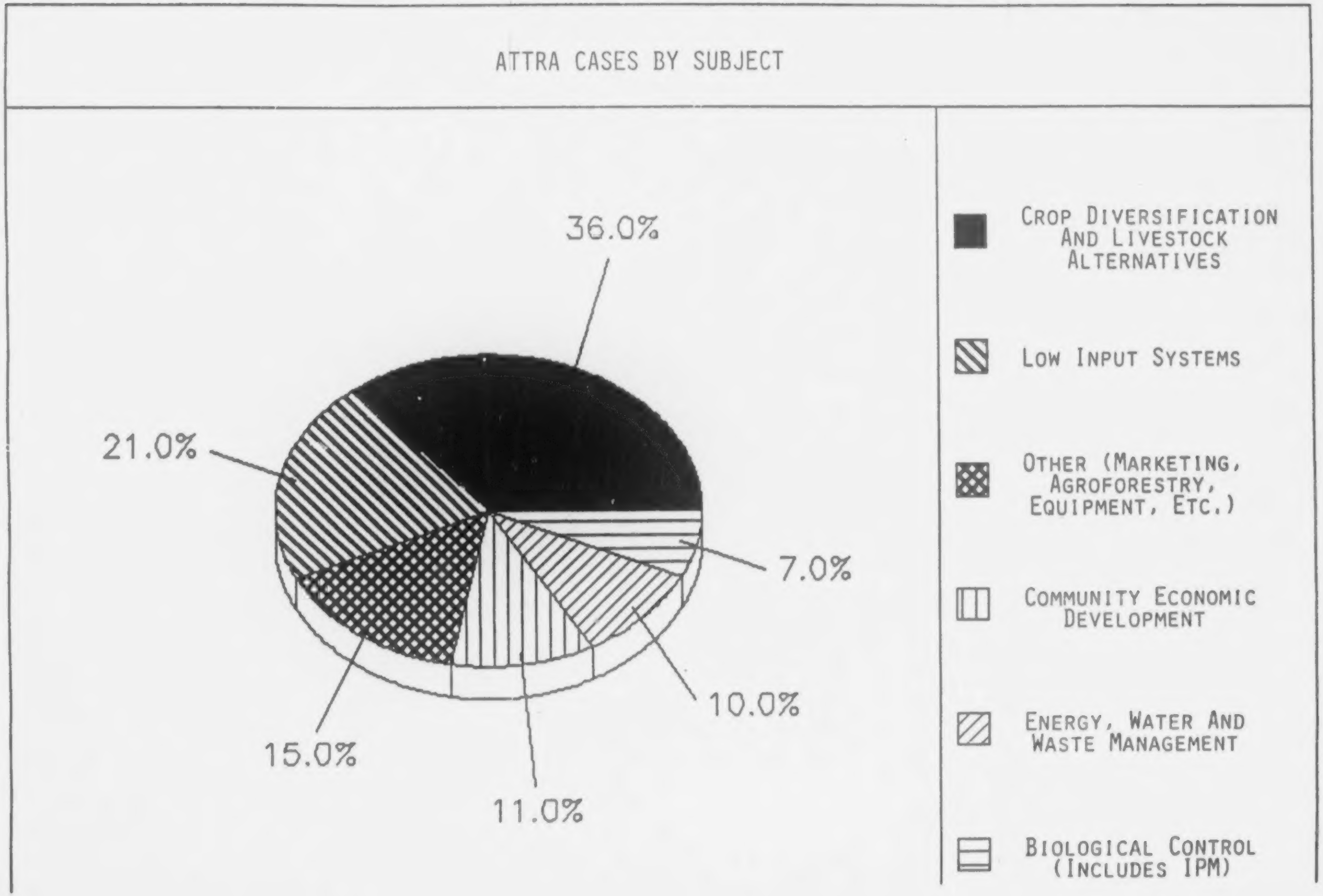
The success of this program can be greatly attributed to the support and cooperation of USDA. In particular, Dr. Ric Gomez has worked closely on the ATTRA program and has been extremely helpful. Dixon Hubbard and Dave McNeal of Extension Service are currently working with the program and the staff at ATTRA is looking forward to continuing the cooperative relationship with Extension.

ATTRA has achieved a great success in their nine months of operation. However, in order to continue to meet the increasing demand for information that only ATTRA can provide, the funding must be renewed and increased to $1.5 million for FY89. Of this amount, $850,000 will support on-going program costs which include the current staff of ten professionals and maintenance of a national toll-free technical program

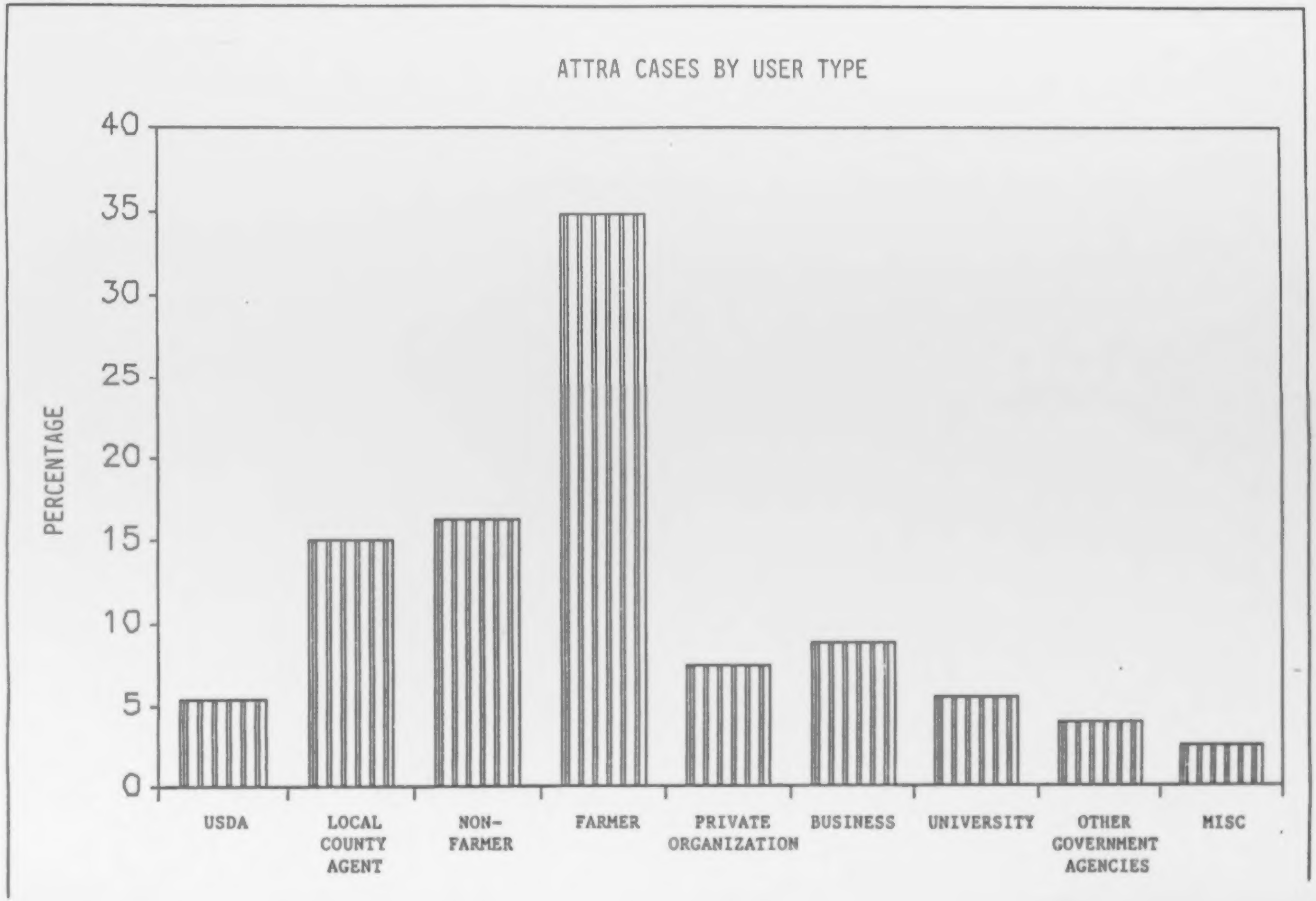
In addition, $650,000 will support the establishment of a data-base system to catalogue technical information and facilitate timely responses to incoming calls for technical assistance.

I cannot stress enough the importance of giving ATTRA sufficient funding in FY 89 to allow the development of an information data base. This will give the program the necessary capability to respond to farmers and county requests in a quick manner. It will also mean that ATTRA can fulfill its goal of being the central technology transfer center for low-input agriculture.

I appreciated the opportunity to testify today, and would be pleased to answer any questions.



ATTRA CASES BY SUBJECT


ATTRA CASES BY USER TYPE
PERCENTAGE
40
35
30
25
20
15
10
5
0
USDA
LOCAL COUNTY AGENT
NON-FARMER
FARMER
PRIVATE ORGANIZATION
BUSINESS
UNIVERSITY
OTHER GOVERNMENT AGENCIES
MISC

## STATEMENT OF JOSEPH F. SEDLAK

Mr. Chairman, members of the Subcommittee, I appreciate the opportunity to testify today. I am Joseph F. Sedlak, President of the National Center for Appropriate Technology (NCAT).

NCAT is a private non-profit organization with offices in Washington, D.C., Butte, Montana and Memphis, Tennessee. NCAT promotes the goals of appropriate technology through research, demonstration and information transfer. The organization has previous experience in linking federal resources with state and local needs. NCAT has utilized this experience through a program called the National Appropriate Technology Assistance Service (NATAS) which is funded through Congress and administered through the U.S. Department of Energy. NATAS has been providing technical assistance to the public on conservation and renewable energy topics since 1983.

In addition, NCAT sponsored the 1987 "New Directions for Rural Communities" conferences in Bozeman, Montana and Memphis, Tennessee. The conferences, which were funded by the Prudential Foundation, dealt with practical alternatives for sustaining farms and towns, and with issues facing agriculture such as over-production of crops, government programs, soil erosion and environmental degradation. The 200 participants in the conferences included farmers, ranchers and Extension Agents.

NCAT's background and experience in technology transfer has made it uniquely qualified to provide service in a range of other disciplines. We were therefore pleased to undertake a similar endeavor in the agricultural field when this Subcommittee appropriated $500,000 in start-up funds in FY87 for the establishment of ATTRA (Appropriate Technology Transfer for Rural Areas). It was largely your leadership and that of the other members of this Subcommittee that launched this important program. We appreciate the continued support you have given ATTRA in FY88.

Before I summarize ATTRA's overall objectives and accomplishments during the past nine months of its operation, I would like to set forth our budgetary request for FY89.

NCAT requests an appropriation of $1.5 million for FY89 to continue staff support at current levels, maintain the operation of our toll-free 800 lines, establish a data base system to catalogue technical information, and facilitate timely responses to incoming calls for technical assistance. This funding level will allow ATTRA to operate effectively by delivering up-to-date information quickly to the farmers, extension agents and community leaders who need it.

Let me bring the Subcommittee up-to-date on ATTRA's progress over the past several months.

### Purpose of the Program

ATTRA was established as a USDA Extension Service program, managed by NCAT, to collect and disseminate information on low-input farming and community resource management to farmers, extension agents and rural communities through direct technical assistance, publications and workshops.

ATTRA assistance includes:

- providing advice to farmers on lowering production inputs such as fertilizer, pesticides, fuel and water;
- recommending more efficient management practices including irrigation scheduling, crop and livestock diversification, soil conservation, and rotational cropping;
- helping rural communities learn about developing businesses that complement a more diverse agricultural base;
- recommending solutions to water, soil and other land resource problems; and
- providing information on innovative ways to reduce rural community infrastructure costs.

ATTRA started operation of its toll-free line in July of 1987 with a start-up appropriation of $500,000. This funding level covered the first six months of operation. ATTRA's appropriation for this fiscal year is $750,000.

In its first nine months of service, ATTRA has proved itself capable of providing timely and valuable information on low-input farming and community resource management. By early April of this year more than 1,700 farmers, county agents, university specialists, local officials and agribusinesses had received technical information through the ATTRA program. These users have rated ATTRA assistance "excellent."

## Increased Interest in Low-input Agriculture and Community Resource Management

Interest and activity in low-input agriculture and rural community resource management have increased dramatically since ATTRA was conceived in 1986. ATTRA itself is now successfully operating, and a number of new programs at the local level, state level and the federal level are contributing new perspectives and assistance to farmers and small towns throughout the country.

These programs are generating both a new optimism and a better understanding of some of the persistent problems facing farmers and small towns. For example, recent studies have identified more and more instances of groundwater contamination by nitrates and pesticides. At the same time more research-based, practical information on reducing synthetic fertilizer and pesticide use is being developed. ATTRA is able to make this link between a problem like groundwater contamination and the means to avoid it, and provide this information to those who can use it.

The need for ATTRA has never been greater. The resources needed to support widespread investigation and application of low-input approaches are still relatively meager and unevenly distributed. While some states are initiating badly needed programs, many of the states facing the gravest problems are least able to afford new programs to assist farmers and communities. ATTRA is the only federal program dedicated to identifying and evaluating developing sources of information and making that information readily available to people in every corner of the country.

As low-input agricultural systems become more widely used, new challenges emerge. For example, in many parts of the country the demand for lean beef, specialty crops and other low-input products has outstripped the current production capacity. Many small towns now realize that they can take control of their own futures but don't know where to turn for the advice or seed money to develop their own initiatives. ATTRA is addressing these needs.

In turn, these new methods fuel demands for new answers. For example, what are the latest developments in Integrated Pest Management (IPM) for alfalfa? How are organic fertilizers used in drip irrigation systems? How are edible flowers produced and processed? What new options are available for mechanical cultivation of row crops? How is composted sewage sludge applied?

The ATTRA program has gotten off to a remarkably effective start. Increasing demand for information that is only available from ATTRA places a burden on the small staff to respond quickly and efficiently. Since December, calls into ATTRA have increased from 40 to more than 100 per week. To enable the program to respond to the increasing demand for information, ATTRA will need to build a data base that permits rapid research and response time to user questions. This data base will give ATTRA the opportunity to centralize all of the current research findings, technical reports and application methods from universities, the National Agricultural Library, private organizations and businesses, state and local governments and from individual farmers. Development of this data base will be an on-going process at ATTRA, but the initial work will yield improved services to ATTRA users immediately. Much of the planning for this data base has already been completed.

## 1989 ATTRA Funding

ATTRA's work meets a crucial need in America's agricultural areas to maintain productivity and profitability. But ATTRA can only be successful in meeting the demand for these new ideas and technologies by delivering up-to-date information quickly to the farmers, extension agents and community leaders who need it. ATTRA must have funding in 1989 to support the development and expansion of its information data base to assure prompt and accurate responses to the problems facing its users.

Therefore, our request for $1.5 million in FY89 is extremely important in making ATTRA a successful national technical technology transfer program for low-input agriculture and community resource management -- a goal this Subcommittee established when it first appropriated funds in FY87. The $1.5 million will allow us to continue the service currently offered by our staff of ten professionals, and equally important, allow us to develop our information data system.

In closing, I would like to commend the USDA Cooperative Extension Service for their outstanding contribution in assisting ATTRA during the difficult start-up period that any new program goes through in its early phases. Administrative problems have been minimal, which in my opinion demonstrates the ability of the private and public sector to work together successfully. At this time we are working out an arrangement with the Extension Service to provide ATTRA with a full-time liaison staff person. This will further streamline the excellent relationship that now exists.

ATTRA has been designed to complement and strengthen on-going government and private programs by centralizing at one location the information and technical assistance which can serve the entire country. This will benefit localities which now must cope on their own with the challenges of farm failures, the need for diversification, and environmental pollution. Few rural areas can support the necessary budgets to meet these challenges. ATTRA will continue to meet this need in FY 1989.

I have been pleased to give this update to the subcommittee, and would be happy to answer any questions.

## UNIVERSITY OF MARYLAND

### STATEMENT OF DR. RAYMOND J. MILLER, VICE PRESIDENT AND DEAN, COLLEGE OF AGRICULTURE

Senator **BUMPERS**. Our next witness is Dr. Raymond Miller, vice president and dean of the College of Agriculture from the University of Maryland.

Dr. **MILLER**. I have asked Mr. Holmes, who is the next speaker to come with me, too, since we are speaking on the same subject, if that is all right.

Senator **BUMPERS**. Are you on the College Park campus, Dr. Miller?

Dr. **MILLER**. Yes, I am.

Senator **BUMPERS**. Please proceed.

Dr. **MILLER**. Thank you, Mr. Chairman. We would like to address this subject.

Senator **BUMPERS**. I think you ought to know that I cut some commercials out at your farm when I ran for reelection in 1960. That was the closest farm we could find to show the flag, and that I was in favor of agriculture.

Dr. **MILLER**. We are very pleased to hear that, and we welcome you at any time.

Senator **BUMPERS**. Thank you.

Dr. **MILLER**. We would like to testify on integrated pest management today and talk about some of the things that are going on and then I would like to call on Mr. Holmes to talk about it from a user standpoint.

A little background: For a number of years in the Cooperative State Research Service budget of USDA, there has been a line under special grants for integrated pest management. In 1984, there was a national program and committee set up through the regional system of the State Experiment Stations to deal with integrated pest management. This followed a program that had been in progress for a number of years that was based out of Texas A&M.

As a result of this regional program over the last number of years, we have set up a regional-based IPM program where each of the regions have identified the problem areas that they think need to be worked on in the integrated pest management area.

I have set up a competitive grant process for the use of these funds to CSRS. Over that period of time, some 200 different grants have been awarded dealing with IPM in those different regions.

IPM is addressing a large array of the complex problems in the agri-ecosystem. As a result, they are improving the productivity and environmental compatibility of these systems. As we look at integrated pest management, not only is it necessary for the control of pests, but we believe it is going to have a real impact on a number of other areas that are very important to society now and in the coming years. Water quality and how many chemicals we use in the control of pests is going to have a major impact on water quality; and, of course, this is a very important item, as you have just heard from some of the other presenters in terms of sustainable agriculture.

We think that integrated pest management is also going to be very much involved and going to be a beneficiary of some of the emerging technologies, be that computer based or biotechnology, so it is very important that these funds for integrated pest management be continued in the CSRS budget.

Most of the pest management that we have talked about is based in our agricultural production sector, but that technology has also been transferred to our urban-suburban setting. We often don't think of that, but that is also a major area where we have pest problems and problems that are very real to probably a larger population.

So what I would like to do is to call on John Holmes, who is the president of American Tree Care, Inc., and have him tell you a little bit about some of the things they have done in the urban-suburban setting in terms of the use of integrated pest management information that has come from, largely, the agricultural ecosystem setting and has been applied to that environment and why there is a need for not only these kinds of programs, but some of the issues he sees. If I may, Mr. Chairman?

Senator **Bumpers**. Mr. Holmes, can you tell me how to kill all those caterpillars in my trees out in my backyard?

Mr. **Holmes**. We have to go look at them together and work out a program. [Laughter.]

Senator **Bumpers**. I am sorry. I didn't understand your answer.

Mr. **Holmes**. Well, we don't target control for an individual pest nowadays. We look at your trees and we determine how to make your trees healthy. If the pests are controlling doing so, that is what we are aiming at. We don't just go and put out fires, so to speak; we manage plants.

Senator **Bumpers**. Go ahead and tell me about it.

## American Tree Care, Inc.

### STATEMENT OF JOHN J. HOLMES, PRESIDENT

Mr. **Holmes**. OK. I am here today to submit an opinion from the green industry on the value of integrated pest management. Speaking from the end user, I have been taking technologies from the universities and attempting to incorporate them into a commercial business. At this point in time, we are stalemated in progress.

We have shown great advances in reducing pesticides introduced into the environment and reducing the numbers of plants we are treating, but that is it. That's as far as universities have gotten.

The green industry as a whole is very large, and there are many components of it. I am speaking for arborists, the people who maintain your trees and shrubs.

As you know, there are nurseries and landscapers and such. The wholesale growers in Maryland alone, the wholesales people who are growing the plants that landscapers install, account for over $70 million in volume, and employ over 1,000 people. So nationwide, it is a very large industry.

The pest control technology for urban landscapes is greatly lacking. We have had great research done in agriculture, identifying pests and how to control them in an ecological fashion, but the technology for urban pest control is back in the fifties.

With the advent of DDT and such, that is where technology was born, and that is where we are at today. With urban areas growing each year, currently, over 74 percent of our population are growing in urban areas, not rural areas. This is where we should focus our attempts a little more.

At any rate, there is excessive use of pesticides in industry. This is an example of a comparison study that we did a few years ago between traditional spray methods on urban plants and integrated pest management treatments on urban plants. You can see the slotted bars show tree treatments on a calendar-based spray program on two pests, mites and spider mites. This is a long scale, so this represents 30,000 plants versus 4 or 5 plants.

The black bars show actually when the pests were out, when they were present, when they could be controlled. As you can see for azalea mace bug, the first generation may have been controlled, the second generation was missed. For spider mites the second generation was missed.

We found the efficiency of the sprays that the urban pest control people are using is way off. We found 36 percent efficiency in traditional pest control methods.

Senator **Bumpers**. Thirty-six percent.

Mr. **Holmes**. Thirty-six percent efficiency. Also, by looking at 4 or 5 plants treated here versus 30,000, traditionally, we sterilize the property. We feel that is wrecking the environment. Believe it or not, the industry is concerned about long-term contamination of the environment by the materials we are putting on. Granted, it may be due to the liability crisis of our insurance companies who have made it important to us, but we have to live on this earth, as well.

We are concerned about over using any material to control these pests. We are also concerned about the safety of our clients and the safety of the public and the safety of our employees who have to handle these materials.

I want to go over here right now what American Tree Care has been using. They have adapted technology from universities into an IPM program called Arbor Tracking System. As you can see in our first year of operation, with this chart, we have number of gallons utilized to maintain plants versus number of acres, and with traditional methods of pest control in 1983, you have a line like this. We used, like, 13,000 gallons.

On the same properties in 1984, utilizing integrated pest management, we used 3,000 gallons. That was a 73-percent reduction in pesticides used.

Data like this has been published all over. Pilot projects at the University of Maryland have shown a 94-percent reduction in managing to plants.

Senator BUMPERS. You are talking about getting the same result?

Mr. HOLMES. yes.

Senator BUMPERS. Using that much less pesticide?

Mr. HOLMES. Yes, exactly. Commercial nurseries have had that result, and other IPM programs around the country have realized an 85- to 90-percent reduction in pesticides they have had to use to maintain the quality of the plants. So that is very successful for us.

What makes it very interesting is that we have been able to do this, and the cost to do this type of service has only gone up about 10 percent, so when industry saw this figure, they were interested. We can do it environmentally, and we can also make money at it.

So from this study which we published, the green industry is very interested in adapting IPM techniques, and they are ready. Successes have been with the extension programs. The homeowners appreciate integrated pest management; the commercial arbors and commercial nurseries. They are in tune to it, and they are really looking for more help in setting up these programs out in, say, the real world where dollars and cents are used.

The benefit, these results I have showed you, are from the technology that the universities have developed since 1981. As I say, we have come to a stalemate right now. What we need at this point to continue to reduce the contamination is better trained personnel. I do consulting around the country to set up IPM programs. The first thing they say is, "Where can I get a person to set this program up?" I have no answers because universities aren't turning out people qualified to set up integrated pest management programs.

My own personal needs, to continue this IPM is I need replacement for the hard pesticides. I need more work on the biorationales, which would mean the horticultural oils, the safer soaps, the BT's, the things that are safe to use for employees and clientele in the environment.

The red light is on, but what I want to say in conclusion, is that the green industry really does want to adapt these techniques. But we need more work in educating the public. Some people have what is called entomophobia, where they are afraid of anything that moves, and they want it controlled.

If they are educated on beneficial insects, insects that play no role in plant disease or chewing, then we have an easier job. We need more work on beneficial insects, how to utilize them to control pests, how to augment them and conserve them when we use our pest control methods when you work on monitoring techniques, varying degree days and the aesthetic thresholds.

If we can establish aesthetic thresholds, then we can have a standardized decisionmaking process, and people across the country will be using less pesticides across the board, and we think that is very important.

In conclusion, pesticides are in use all over the landscape. Urban IPM has been shown that it can change that problem. Industry wants to change, but it is difficult to do without more research and training at the land-grant universities. We are hoping you really can find some money to continue support of IPM.

Dr. MILLER. Thank you, Mr. Chairman.

Senator BUMPERS. Mr. Holmes, are you associated with the University of Maryland?

Mr. HOLMES. I am a product of the University of Maryland, yes.

Senator BUMPERS. Are you a private corporation?

Mr. HOLMES. Yes, sir.

Senator BUMPERS. A consultant?

Mr. HOLMES. Yes.

Senator BUMPERS. You head it up. Are you the president of this consulting firm?

Mr. HOLMES. Yes.

Dr. MILLER. Based out of New York.

Senator BUMPERS. You are separate witnesses that just happen to be sitting at the same table; is that it? There is no correlation between his activities and the University of Maryland?

Dr. MILLER. We requested that Mr. Holmes be able to come and testify on behalf of IPM from a user's standpoint, user of IPM.

Senator BUMPERS. Mr. Holmes, just let me say that your testimony is extremely interesting. I must say, I couldn't agree with you more. I don't know; I would like to know how you come up with a statistic, though, that shows that people spend almost a day less in the hospital when they are surrounded by green plants. Maybe you can come up on a solution to health care cost containment. [Laughter.]

We have been trying to figure that out.

Mr. HOLMES. I read that in the "Warehouser," a professional booklet.

Senator BUMPERS. I think one thing is true. A shade tree is a very valuable item, and I guess the pests in this country are becoming increasingly resistant to the pesticides we are using.

Mr. HOLMES. Yes, sir.

Senator BUMPERS. I must say, I am one of those culprits who continue to use more on my dandelions and on my caterpillars. All the gypsy moths in the United States settled in my back yard. I am just having a heck of a time with them. In any event.

Dr. MILLER. If you are interested, we have some brand new brochures as to how to control them.

Senator **Bumpers**. Better than that, why don't you just come out and get rid of them for me? [Laughter.]

What kind of a budget are you asking for, Dr. Miller? I didn't get that in your testimony.

Dr. **Miller**. The budget item that has been in the budget for the last number of years is approximately $3 million, and we are requesting that that be continued.

Senator **Bumpers**. What are you asking for? Are you just here as an interested witness?

Mr. **Holmes**. No; I am really devoted to making this work. I see it as very logical to get these pesticides out of the environment, and I see it as a far-reaching problem where private industry can't do it. We need to start educating people in grade school about insects and about problems so that when they grow up they are not afraid of them.

It is a huge problem with psychological opinions on what is going on in the environment, and it is something that the Federal Government must address. You can help us out.

Senator **Bumpers**. I think you have got a great future, Mr. Holmes, because I think the biggest problem facing American agriculture, and this doesn't particularly relate to trees and shrubs and so on, which you are interested in, but the farmers in my State have just been absolutely on their ear about the fact that 26 counties in my State are going to have to discontinue the use of a whole host of herbicides and pesticides because they are in the watershed areas of running streams.

Quite frankly, I think that the food surplus in this country, if we really get serious about banning herbicides and pesticides, the food surplus could turn into a shortage very quickly.

Mr. **Holmes**. That is right.

Senator **Bumpers**. Unless people like you come up with alternative solutions. So I admire your work and appreciate it.

Did you want to say something else, Dr. Miller?

Dr. **Miller**. I would like to add one other thing, if I may, Mr. Chairman. One of the things that I think we have not done very well, at least as a scientific community, maybe a community in general, is to bring some of the various interests and sometimes competing interests together on these issues.

In Maryland, for example, when we start looking at the use of chemicals, pesticides, we find that the use in the urban-suburban area is as great or greater per acre than it is in the agricultural area. In most cases, those people are not as aware of the use of those chemicals, the danger of them; it is not as high a cost item, and so it is much easier to over buy and then dispose of it in probably ways that are not as meaningful environmentally.

As a result, a lot of the pressures against pesticides are coming from those kinds of uses. So I think one of the ways to keep this whole thing in a somewhat better perspective is if we can get those two kinds of user communities to come together and really deal with this whole problem of pest management in a more thoughtful and probably better environmental way.

Then some of these pressures might begin to come into perspective so we don't face that potential you are talking about in the agricultural community.

Senator **Bumpers**. Your point is certainly well taken. Herbicides and pesticides are sort of like the dentist. He wants to x-ray your teeth. He says, "This is perfectly harmless," but he jumps behind a big lead shield before he pushes the button.

I bought some herbicides for my dandelions yesterday. By the time I got through reading the instructions, I was afraid to open the darn can. "Protect your eyes, protect this. Call the doctor in case you do so and so." It was really sort of a frightening experience.

Thank you both very much for being with us.

Mr. **Holmes**. Thank you, Senator.

[The statements follow:]

## STATEMENT OF RAYMOND J. MILLER

In 1984, a National Integrated Pest Management research program was initiated that recruited the administrative and technical leaders in the four State Agricultural Experiment Station regions to identify IPM research priorities and to solicit research proposals in unidentified research priority areas. To date, over two hundred grants have been awarded to interdisciplinary scientists in over forty universities on the basis of research priorities and proposal quality as evaluated by peer review. The goal of the program is to assimilate the knowledge developed in basic science with that in monitoring and tactics development research into a total, integrated pest management system that contributes to maintenance of agricultural productivity in a cost effective, environmentally safe manner.

IPM programs are addressing the complexity of agro-ecosystems. And IPM programs are improving the productivity and environmental compatibility of agro-ecosystems by understanding interactions within agro-ecosystems. For example, management practices affect subsequent pest population dynamics (resurgence). Weather affects pest and beneficial population dynamics, crop growth and plant and animal response to pest injury. Progress towards development of comprehensive IPM programs depends on understanding the complex interactions among key pests and beneficials, the plant or animal, and weather, and on incorporating this understanding into IPM systems.

IPM programs have introduced and proven that systems science and modeling are not only effective tools for developing understanding of complex interactions in agro-ecosystems, but are also effective tools for organizing and directing research, and for transferring the knowledge to the user. IPM has expanded simulation modeling to the higher level of decision support systems and introduced the application of artificial intelligence and expert systems to agriculture.

In our view, the underlying science of IPM must be the basis on which future programs are built. In our view, emerging technologies such as biotechnology and the genetic improvement of plants will have enormous potential for improving agricultural systems (when incorporated into agro-ecosystems properly) by enhancing cost effectiveness and reducing negative environmental impacts. In our view, emerging problems and programs such as sustainable agriculture, water quality, farming management systems, energy efficient systems, agriculture in an urban environment all are dependent upon the progress, accomplishments, and approaches developed in IPM programs.

I am attaching the membership of the National IPM Coordinating Committee which is composed of members from the four regional IPM programs. These regional members interface with the entire administrative and science expertise within the region and thus, the nation. This regional/national organization has developed a National Plan for Future Direction. To implement the National Plan for Future Direction, the National IPM Coordinating Committee is developing an IPM Workshop in 1989 with members of ARS/USDA, ERS/USDA, ES/USDA, and the IPM unit in EPA. The National IPM workshop focuses on the future direction of the program and the research/technology transfer interface. The ultimate goal is to provide information in a form that Cooperative Extension can deliver more effectively to decision makers. The ultimate goal is to use existing information "and forthcoming information" effectively and efficiently for the purpose of decision making and problem solving. To accomplish this, the IPM program is pursuing the use of methodologies from artificial intelligence that permit integration of both quantitative information and heuristic knowledge of experts for decision making and problem solving.

I appreciate the opportunity to discuss the accomplishments, aims and direction of the IPM program, and to request that the resources designated for this program through the Cooperative State Research Service/USDA budget be continued.

April 28, 1988

## National IPM Coordinating Committee Members
1987

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Dr. R. J. Miller
Vice. Pres. & Dean
University of Maryland
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## STATEMENT OF JOHN J. HOLMES

The need for additional Federal monies to research and develop techniques and guidelines for Integrated Pest Management systems for urban landscapes has grown over the years to a point where action must be taken immediately to fully utilize the momentum that has started. In 1979 the President's Environmental Message directed all Federal agencies to take additional steps to encourage the development and use of Integrated Pest Management . Since then, the E.P.A. and U.S.D.A. (and its associated U.S. Forest Service and Cooperative Extension Service) have made efforts to encourage the adaptation of IPM principles. In recent years a growing number of commericial companies in the "Green Industry" (Landscape Maintenance, Nursery, Turf, Arborists) as well as an increasing segment of the public are coming to accept IPM as an acceptable alternative to conventional methods of pest control. Interest among Arborists and Nurserymen in particular, has increased due to the advances made in research at State Universities, the biggest advance being viable delivery systems for I.P.M. so that ecological approaches to plant management can be utilized and still realize profit.

The "Green Industry" today is comprised of companies that work with trees, shrubs, turf, indoor plants, and flowers. It includes all aspects of producing the seed or cuttings, growing the plants, selling the plants, installing the plants and maintaining the plants for as long as they live. Without these plants, that we have all grown accustomed to and take for granted, the world would not be fit for habitation. The Green Industry is important in that it employs over several million people in the U.S. and accounts forover ten billion dollars in revenues each year. These plants although not usually grown as food or fiber for clothing nonetheless are equally as valuable. For example, a tree in very good health, growing in a prominant location that is 12" across 4 feet above the ground (dbh) can be worth in excess of $3,000.00 . The plants of 17 U.S. cities were inventoried and the shade trees alone were estimated to be worth over 200 million dollars . And Realty authorities estimate that trees and shrubs may enhance property values as much as 20% .

Plants can be monetarily valued but also are important as they modify air temperatures, reduce runoff and soil erosion, reduce noise and reduce air pollution . An 80 foot Beech tree is capable of removing daily the equivalent volume of CO2 produced by 2 single family dwellings . And maybe most importantly, plants have a great psychological impact on mankind. We like to be around plants. It has been shown that the time required to recuperate in the hospital was reduced from 8.7 days to 7.9 days when the patient could view or was surrounded by plants . Professionals in the "Green Industry" serve an important role in growing and maintaining landscape plants for their beauty which in turn improves the quality of our everyday lives.

History has recorded man's struggles to combat insect pests and plant diseases attacking cultivated plants. We are approaching the 1990's and much is the same only now we are acutely aware of some of the consequences of pesticide use. The contamination of the environment and resulting impacts on wildlife come to mind immediately but also accidental poisonings and sickness to the public and applicator alike. To this day we do not know all of the consequences of the materials that we are applying. Acceptable answers to pest control in the 50's and 60's are not acceptable today. We cannot even imagine the unknown effects from the variety of toxic substances impinging on our environment, and worker safety and the consumer's safety are not adequately assured. For pesticides used in urban areas there are no reentry standards for entering an area previously treated. (These standards are common place in agriculture.) With this situation it is no wonder that the public in general is now concerned about pesticide application. I say concerned not opposed as there is an ever growing demand for pest control services. Over 2.8 billion dollars was spent on pesticides in urban situations in 1978 . To make the situation even darker, more and more pesticides are becoming useless as pest resistence increases. Continuous use of pesticides in control programs speeds up the development of resistence in pest populations and the over use of pesticides can suppress the activity of biological control agents resulting in resurgence of primary pest populations and also unleash secondary pests for which labeled pesticides are not available .

Advances in technology and research make it possible for more accurate testing of pesticides for long term affects which results in the recall of more and more products each year. Long residual materials one used as an early season spray to last all year are gone and replaced with shorter lived materials requiring repeated applications, thus the chances of mishap are increased. With this trend of continually removing products from the market, the pest manager often finds himself with pest problems and no solutions.

From a business point of view the times of today make it difficult to remain competitive. Graduating college students, long thought to be the hope for the industry, want no part of pest control as it stands now. So it is very difficult to get quality personnel to operate a conventional pest control program. Each year State and Federal Legislation makes it more and more restricted as to how and where pesticides can be purchased, stored, applied and disposed of. And to top it off the insurance companies are drastically increasing premiums for less coverage wherever pesticides are involved.

Combining the above problems with many others it is obvious that many companies will discontinue handling pesticides. Those that continue will be eager to incorporate new techniques and materials into their business to reduce problems of safety, environmental contamination and also improve the effectiveness of their service.

Faced with the paradox of wanting to phase out the use of all 'hard' pesticides as soon as possible but still maintain the health and beauty of landscape plants, many commercial operations across the country have turned to I.P.M. techniques and philosophy in recent years. One of the industry pioneers in this area is American Tree Care, Inc., a full service plant care company in Southampton, N.Y. In 1984 they implemented a delivery system developed by the Department of Entomology at the University of Maryland. By utilizing Maryland University's monitoring techniques, the use of fieldmaps and adding their own custom software to collect data and document treatments plant by plant, their I.P.M. program called Arbor Tracking System set the standards for others to follow.

The basics of the Arbor Tracking System program are:

1. A detailed inventory documenting the existence and condition of all landscape plants to be managed.
2. Monitoring of those plants on a regular basis.
3. Careful diagnosis of any problems that are detected.
4. Determining if the problem really warrants treatment.
5. Treatment of only individual plants that warrant control.
6. Using prescription treatments (most effective for that particular problem and least disruptive to the environment).
7. Detailed computer documentation of every treatment on every plant.

When American Tree Care compared the results of its IPM program Arbor Tracking System to the conventional pest control methods employed on the same plants, the results were similar to other IPM programs modeled after Maryland's. The gallons of pesticides necessary was reduced from 13,835 gallons in 1983 to 3,748 gallons in 1984 (a 73% reduction) while maintaining or improving the health of the plants. Further, in years hence, the toxicity of the materials used was reduced because 'softer' pesticides were now effective due to efficient monitoring. The result from the first IPM year at American Tree Care that really attracted attention among professionals however, was that it was run very profitably. The program they developed was so successful that it encouraged many other commercial companies to employ I.P.M. techniques in their business.

Today there are 5 commercial plant maintenance companies using this system alone and there are many many other versions of I.P.M. being tested by other plant maintenance companies. Industry is accepting the technology from the universities, but now the technology is not coming fast enough. In order for this positive trend (of reduction in the amount and toxicity of pesticides introduced into the environment) of plant management (no longer termed pest control) to continue, Researchers must come up with answers for the following problems:

When I consult for other companies, the first question asked is "where do I find a person qualified to initiate IPM in my business?" Managers today realize that they are not properly trained, nor do they have time to devote to learn about IPM. Therefore, there is a real need for Universities to turn out more students that are trained in more than one horticultural science. A good IPM manager needs to know about the plants he/she is working with, the cultural requirements of each, the associate insect pests and diseases of each, and also the ecological impact of manipulating those associations. At this point qualified IPM managers are so scarce that this is the number one pit fall to widespread adaptation.

The second biggest problem facing companies that wish to implement IPM is that of replacements for pesticides banned or that are too toxic to be acceptable in these times. Quality IPM companies are eliminating all pesticides in Categories 1, 2 & 3, and emphasizing materials in Category 4 (LD50 of > 5,000) and 'Biorationals.' Biorationals are materials that may naturally be present in the environment. There is great hope that researchers will quickly discover more of these materials for us to use in place of more toxic pesticides. Examples of Biorationals may be plant derivatives such as Pyrethrins or Neem extract, or naturally occuring insect diseases such as found in the products 'Milky Spore' or 'Dipel.' These 'natural' materials generally are very selective and toxic only to the target organism, not humans or other wildlife. If we had some of these new products available now, I think that the industry would shift from using traditional pesticides very quickly.

From the people that I have talked to, education about IPM is very important. It is amazing that many professionals still do not fully understand the concept and if you polled the general public (those that are contracting for pest control) only a small percent have ever heard of Integrated Pest Management. The industry has been hard at work educating professionals, but educating the public about the goals of IPM and what must be done to reach these goals must be administered through public agencies like the E.P.A. or the Cooperative Extension Service. We feel that convincing the Smith's that their yard does not have to be as green and sterile as the Jones's is a monumental task that will require broad sweeping programs only the government can provide.

With the 3 above mentioned needs underway, then researchers could begin to fine tune all of the industry tested IPM delivery systems. Once the hard pesticides are obsolete, the purchasing public is aware of the concept, and trained personnel are in the field, improved techniques are of vital importance. We must continually be improving our monitoring techniques to ensure early detection of problems before they start. We need more information on growing degree days, an essential tool in agriculture that landscape managers cannot utilize without further research by the universities. Agriculture also has the luxury of economic thresholds that we cannot use since our plants are grown for beauty not consumption. By developing acceptable aesthetic thresholds for each plant's pests, the monitor in the field will have standardized guidelines as to when treatment is warranted and when not. These are endless areas where research is necessary. We need to know what the ecological impact is for every material we use in every possible plant ecosystem. We must learn to utilize plants that can defend themselves naturally from pests and diseases, but we must locate or develop these plants. A major concept of I.P.M. is that the proper plant in the proper site will have few problems. We have observed this to be true in most cases. We have also observed that plants properly maintained (i.e. cultural practices) have fewer problems. We need more research done on the impact of over fertilizing, incorrect pruning, and inadequate watering and many other cultural practices that must be utilized for IPM to be successful.

The research needs outlined above are real. The pest control industry was born with the technology of the 1950's and has advanced very litle since that time. It is becoming obvious that we cannot 'cold turkey' stop using pesticides to protect our landscape plants. They are too valuable a resource to let perish. It is our hope that the focus of reaearch at the Land Grant Universities can be partially directed to improve and bring pest management technology up to date. We cannot continue to introduce toxic materials into the environment without paying for it in the end. Integrated Pest Management has been proven to be a most logical way to stop this excessive use of chemicals, let's not wait until it is too late.

John J. Holmes

John J. Holmes
President
4/18/88

## CONGRESSIONAL WITNESS

### STATEMENT OF HON. LLOYD BENTSEN, U.S. SENATOR FROM TEXAS

### ACCOMPANIED BY DR. PERRY ADKISSON, CHANCELLOR, TEXAS A&M UNIVERSITY SYSTEM

Senator **BUMPERS**. Our next witness is our colleague, Senator Lloyd Bentsen, who brings to us Dr. Perry Adkisson, chancellor from Texas A&M. Senator Bentsen, Dr. Adkisson, we are most honored to have both of you here. The gentleman from Texas Tech awhile ago wanted to know where you were while he was testifying, Senator Bentsen.

Senator **BENTSEN**. I was really trying to build up some more support for him, Mr. Chairman, and thank you for all the help and your kind and supportive remarks.

Senator **BUMPERS**. He said he would be back to take it up with you personally.

Senator **BENTSEN**. He said he would be with you all the way.

Senator **BUMPERS**. We are pleased to have you.

Senator **BENTSEN**. Mr. Chairman, you were talking about integrated pest management. I couldn't help but think that this gentleman I am about to introduce was early on on that.

When we were first talking about integrated pest management, we tried to get the USDA involved in it, and they wouldn't touch it. Finally, we went to the EPA to get it started. Dr. Perry Adkisson was the leading force in pulling together a consortium of about 19 universities to get this thing underway with all the exciting prospects it holds forth.

I am just delighted to have a chance to testify before this important subcommittee, and I really want to congratulate this subcommittee for the foresight it has shown in research in agriculture and the very productive results that have been brought about in that area.

I think it is with your support that we have been able to maintain an efficient research job in agriculture in this country, and I am delighted to have been involved in a number of those research projects that involve my State, like the plant stress lab, Mr. Chairman.

You have heard testimony from Dr. Curl from Texas Tech regarding the plant stress lab and from Dr. Buford Nickols of the Baylor College of Medicine regarding the Children's Nutrition Research Center.

Obviously, I strongly support both those fine programs. I have been involved in them from the very beginning. I think they are in that plus column of your many accomplishments here in the Senate, Senator. So today, I am pleased to present Dr. Perry Adkisson, who will testify in more detail about the Institute of Biosciences and Technology which Texas A&M plans to establish in the Texas Medical Center in Houston, TX.

That is one of the most exciting and potentially valuable research programs that I have seen. They bring together the top-notch agricultural engineering and veterinary medical expertise of the Texas A&M University system, and the world-class medical programs in cancer, heart disease, and nutrition already established in the medical center complex.

I don't know any other place in the world where you have got those things where you can bring them together with such expertise in just one place. It is strongly supported, obviously, by the entire Houston community, and work is rapidly moving forward on it.

Thank you for your support and assistance, because the funding you provided to USDA in 1988 to do a feasibility study of this project has been of great help. That study is being completed, looks very favorable, and Texas A&M has committed its own resources to the architectural and engineering work rather than asking for Federal funds for that, as is done by most others, and they expect to be ready to start on the building later this year.

Rather than asking for a Federal research lab, which would require major and ongoing annual appropriations, Texas A&M has chosen to seek only matching construction funds through the Cooperative State Research Service.

What that is going to do is give this Treasury a maximum return for a minimal investment of some $12.5 million in 1989. The advances being made in biotechnology are absolutely amazing. Potential benefits are enormous. I tell you, Mr. Chairman, that sounds like a vote, and I am going to put the rest of my statement in the record and introduce this very highly qualified and able man, Dr. Perry Adkisson.

[The statement follows:]

## STATEMENT OF SENATOR BENTSEN

Thank you very much, Mr. Chairman, for your consideration in allowing me this opportunity to testify before your Subcommittee and to introduce to you Dr. Perry Adkisson, a distinguished agricultural scientist who is now Chancellor of the Texas A&M University System. Your leadership in the area of agricultural research has paid large dividends over the years to our nation's largest industry, and those contributions have been noted and appreciated by the producers of Texas as well as your home state of North Dakota.

I also want to recognize the distinguished ranking member of the Subcommittee, Senator Cochran, for his support and cooperation over the years.

With your support and assistance, Mr. Chairman, this Subcommittee has played the lead role in maintaining an efficient and effective system of agricultural research in this country. I proud to have been involved in working with you on a number of research projects in my home state of Texas.

You have heard testimony earlier from Dr. Sam Curl of Texas Tech University regarding the Plant Stress Lab and from Dr. Buford Nichols of the Baylor College of Medicine regarding the Children's Nutrition Research Lab. I strongly support both of those fine programs. I am proud to say that I had a role in the establishment of those programs, and I know that they are also carried on the plus column of your long list of accomplishments in the Senate.

Today I am pleased to present to you Dr. Perry Adkisson, who will testify in more detail regarding the Institute of Biosciences and Technology which Texas A&M plans to establish in the Texas Medical Center in Houston, Texas.

This is one of the most exciting and potentially valuable research program proposals which I have seen. It would bring together the top-notch agricultural, engineering, and veterinary medical expertise of the Texas A&M University System and the world-class medical programs in cancer, heart disease, and nutrition already established in the Medical Center Complex. There is no place else in the world where such a combination is being brought together. It is strongly supported by the entire Houston community, and work is moving forward rapidly.

Thanks to your support and assistance, funding was provided to USDA in FY 1988 to do a feasibility study of this project. That study is rapidly being completed, and looks very favorable. Texas A&M has committed its own resources to the architectural and engineering work rather than asking federal funds for that, as is done by most others. They expect to be ready to start on a building later this year.

Rather than asking funding for a federal research lab, which would require major and ongoing annual appropriations, Texas A&M has chosen to seek only matching construction funds through the Cooperative State Research Service. This will give the Treasury the maximum return for a minimal investment of some $12.5 million in FY 1989.

The advances being made in biotechnology are amazing. The potential benefits are enormous, and many of the first applications will come in agriculture and in human medicine, the two areas of strength which this program will combine. For example, certain substances found in broccoli, cauliflower, and other foods are known to help prevent cancer of the colon. This institute's research programs could well pave the way for producing other food crops which also contain these substances, or for increasing the amount found in existing plants. Likewise, many other diseases, such as arteriosclerosis, are known to be diet-related.

This institute will work very closely with the Children's Nutrition Research Center, a USDA lab which is one of the best in the world. CNRC is making major advances in understanding the impact of nutrition on health, and in understanding the role of various food crops on human nutrition. For example, CNRC has isolated a protein in mother's milk that is necessary for proper development of the digestive system but which is absent from formula. That protein will soon be added to formula. CNRC is now working with plant scientists to label major food crops with stable isotopes that permit feeding studies in infants, and is also working to do similar labeling with food animals such as cattle.

To do this labeling work the CNRC needs close support from agricultural scientists who are leaders in their fields just as CNRC scientists are leaders in their fields. The combination of efforts by the CNRC and the Texas A&M institute would greatly speed the day when farmers and ranchers can produce higher-value crops and animals tailored for specific nutritional needs.

Mr. Chairman, I strongly support the request for funding for this lab, and I hope that your committee will be able to provide the necessary funds. However, there is one here today who is far more qualified than I to pass judgement on the merits of this project, and I will now turn the floor over to him.

Dr. Perry Adkisson is not just the Chancellor of the Texas A&M University System, which is one of our nation's top research institutions. He is a world-class scientist in his own right. An entomologist who was educated at Texas A&M and at Harvard, he is the father of the integrated pest management program that has saved farmers millions of dollars and drastically reduced the use of chemical pesticides. He is a member of the National Science Board and last year received the Distinguished Service Award of the American Institute of Biological Sciences. He has a proven track record when it comes to pulling together multiple institutions and academic disciplines into an effective, trailblazing new program, which is exactly what the Institute of Biosciences and Technology needs to be.

He is accompanied by Dr. Charles Arntzen, who is now Deputy Chancellor and Dean of Agriculture at Texas A&M. Dr. Arntzen just joined Texas A&M from DuPont, where he headed one of the largest private agricultural biotechnology research programs in the world.

## STATEMENT OF DR. ADKISSON

Senator **Bumpers**. Thank you, Senator Bentsen.

Dr. Adkisson, we are most honored to have you. Please proceed.

Dr. **Adkisson**. Thank you, Senator Bentsen, Senator Bumpers, Senator Burdick. My name is Perry Adkisson, and I am chancellor of Texas A&M University System.

I am here today to speak on behalf of a request for funding in the amount of $12.5 million to support half of the cost of construction of a facility to house the Institute of Biosciences and Technology, which will be the newest part of the Texas A&M University System, and as Senator Bentsen said, would be located in the Texas Medical Center in Houston.

Let me begin by thanking you and Congress for providing fiscal year 1988 funds in the amount of $50,000 for the feasibility study for the institute. Senator Bentsen has said the Institute of Biosciences and Technology represents a unique and exciting concept that brings together two unparalleled opportunities.

It first provides the resources for unique linking of the outstanding agricultural research capabilities for a broadly based land-grant university, Texas A&M, with the unmatched resources to one of the world's largest clinical and medical research institutions, the Texas Medical Center, to initiate pioneering research on vital problems of food and health and diet-related diseases that affect the entire population of our country.

It allows us to be in a unique culmination of broadly based agricultural, engineering, and medical science to allow the United States to capture the benefits and outstanding opportunities that exist today in biotechnology, including basic biology, molecular genetics, and related sciences.

The biotechnology revolution that has come is the result of the breakthroughs in basic biology and include rapidly advancing knowledge of how they manipulate the genetic codes of plants, animals, and microbes using recombinant RNA and DNA methods.

This has produced opportunities in research not even imagined a few years ago. The most exciting potential is in the applications of this new biotechnology which lie in the fields of agriculture and medicine. There is a great deal of synergy that can be brought about if we can couple these two fields.

The products of biotechnology in bringing economic activity to the United States is estimated at $2 billion per year by the turn of the century. As I indicated earlier, our institute prepared a linkage between existing programs and the A&M University System and those of the Texas Medical Center in Houston and the UT Health Sciences Center in Dallas. The institute will act as a conduit to research that builds on current relationships.

There is also an opportunity for collaboration between adjacent States, such as New Mexico and Oklahoma, and I should say my neighbor State, Senator Bumpers, Arkansas, as efforts expand regionally.

We will provide resident expertise in research and graduate education and outreach will capitalize in the regional capabilities of the individual institutions. We estimate that we will have approximately 50 scientists who will be working in the following general areas:

Biotechnology in human nutrition, and in human nutrition, that will include modification of food to prevent diet-related diseases such as heart diseases, strokes and cancer.

In anticipation of the appropriation requested funding, the A&M University System has fully funded and is proceeding with design of the facility. The design is now more than 50 percent complete. We anticipate that final design would be completed within a few months.

USDA's feasibility study, over which Congress has expressed its interest in this project, has been initiated through an agreement in Cooperative State Research Service and the site team will come to Houston and College Station within 2 weeks to make a site study.

We hope to be able to commence construction on the facility early in fiscal year 1989. We are convinced that this institute and the related research of those parts and other parts of the Texas A&M University System and the Texas Medical Center will become a national resource of inestimable value in a very short time after it is in place.

We believe this because of the growing problem of metabolic and diet-related diseases. As you may know, the three major killers in the United States today are heart disease, arteriosclerosis and cancer. All of these diseases are diet related and some day will be prevented if we know enough to be able to design our food so that it is completely healthful.

The opportunities for sharing complementary capability between these multiple medical agriculture and these various institutions within the medical center will provide creative solutions to these diet-related problems.

The resulting benefit to the U.S. economic development in this country through biotechnology industries that will be created as a result of this investment are enormous. These considerations all speak clearly to the urge that we proceed now with funding of the facility for the Institute of Biosciences Technology.

Mr. Chairman, we appreciate what has already been done by the Congress to provide in fiscal year 1988 funding for the feasibility study, and we look forward to your favorable consideration for our 1989 request.

Thank you very much for allowing me to be here today.

Senator **Bumpers**. I am going to turn this over to the chairman of this subcommittee for whatever action he wishes to take now with this vote coming up.

Senator **Burdick**. We have a vote on, and we only have remaining 5 minutes, so we will be in recess for about 5 or 10 minutes.

[A brief recess was taken.]

Senator **Burdick** [continuing]. Now, would the Human Nutrition Research at the institute be distinguished from the work conducted at the Agricultural Research Service Human Nutrition Research Laboratories?

Dr. **Adkisson**. Well, we, Senator, plan to have a collaborative program with Baylor College of Medicine, M.D. Anderson Tumor Institute, and the Children's Nutritional Research Center, all of whom are involved in identifying causes of diseases that are diet related, primarily in cancer and heart, and some work on arteriosclerosis.

The Texas Medical Center is known primarily for its work on heart and cancer, and those are the areas that we would like to have collaboration on.

Senator **Burdick**. When is the feasibility study of your project expected to be complete?

Dr. **Adkisson**. It will start about May 10, and we will have it completed within a month of that time. So early June.

Senator **Burdick**. When will it be completed?

Dr. **Adkisson**. Early June, we hope.

Senator **Burdick**. Early June. Thank you.

Dr. **Adkisson**. Thank you, sir.

[The statement follows:]

## STATEMENT OF DR. PERRY L. ADKISSON

Mr. Chairman, my name is Perry Adkisson and I am Chancellor of The Texas A&M University System. I am here to speak on behalf of the request for funding in partial support of the construction of the facility to house the Institute of Biosciences and Technology, the newest part of The Texas A&M University System. The Institute will be located in The Texas Medical Center at Houston.

Let me begin by thanking the Congress for providing FY 1988 funds in the amount of $50,000 to fund the feasibility study for the Institute. We are seeking $12.5 million in the FY 1989 budget, which will be equally matched by The Texas A&M University System for the construction of a 12-story facility to be used for research, extension, and graduate education.

The Institute of Biosciences and Technology represents a unique and exciting concept that brings together two unparalleled opportunities:

(1) it provides the resources for linking the outstanding agricultural and engineering research capabilities of a broadly based land-grant university with the unmatched resources of one of the world's largest clinical and medical research institutions to address vital problems of food, nutrition, and health affecting the entire population of our country and

(2) it creates the unique combination of broadly based agricultural, engineering, and medical sciences to allow the U.S. to capture the economic benefits of

the outstanding opportunities that exist today in biotechnology, including basic biology, molecular genetics, and related sciences.

The breakthroughs in basic biology, including rapidly advancing knowledge of how to manipulate the genetic codes of plants, animals, and microbes using recombinant DNA methods, has produced opportunities in research that were not even imagined a few years ago. The most exciting potential applications of this biotechnology revolution lie in the fields of agriculture and medicine. The products of biotechnology are projected to increase the economic activity in the United States by more than $200 billion per year by the turn of the century.

The major institutions in and adjacent to The Houston Medical Center area include:

1. Baylor College of Medicine
2. The University of Texas Health Science Center
3. The University of Texas System Cancer Center, M.D. Anderson Hospital, and Tumor Institute
4. Rice University
5. The University of Houston
6. Texas Southern University
7. The USDA Children's Nutrition Research Center

The parts of The Texas A&M University System that will participate in the Institute are:

1. The Texas A&M University
2. The Texas Agricultural Experiment Station

3. The Texas Engineering Experiment Station
4. The Texas Agricultural Extension Service

The Institute will create a linkage between existing programs in The Texas A&M University System and those in The Texas Medical Center by acting as a conduit for collaborative research that builds on current interactions. It will provide a resident expertise in research, graduate education and outreach that will capitalize on the mutual resource and capabilities of the individual institutions. The facility for which support is being requested will house approximately 50 scientists who will be involved in work in the following general areas:

1. Biotechnology, including the use of recombinant DNA methods to produce biologically active materials that will enhance the quality and safety of food production and to develop new biologically active materials for use in agriculture and health delivery systems.

2. Human Nutrition, including defining quantitative nutritive requirements at the molecular level, developing fundamental knowledge that will feed back to animal and plant research programs to enhance the production of safe and healthy food at affordable prices, using molecular biology to develop new bioprocessing techniques for better food; and drawing together an enlightened nucleus of home economics educators that will provide a national model for adult education on diet-health issues.

3. Bioengineering, directed to developing biochemical engineering and manufacturing processes that will take basic research findings to practical application and which will facilitate technology transfer to a series of new industries that will be formed to develop applications and products for both urban and rural dwellers.

4. Animal Biology, including acquiring knowledge that will be applicable to developing both human and animal health products such as recombinant DNA-based diagnostic tools and improved methods for immunization, enhancing understanding of the molecular chemistry of metabolic and diet-related diseases, and using of livestock and experimental animals as models in the study of human disease.

In developing the mission statement for the Institute, The Texas A&M University System has brought together a distinguished group of scientists and research administrators from across the country to advise on the orientation and organization of the program. A prestigious group of citizens from the Houston industrial community are enthusiastically engaged in helping to develop funds for augmenting the operational budget of the Institute.

In anticipation of the appropriation of requested funding, The Texas A&M University System is proceeding with the design of the facility, which is now more than 50% complete. The USDA's Feasibility Study, by which the Congress has expressed its interest in this project, has been initiated through an agreement with The Cooperative State Research Service, through which the facility will be funded. The site visit by the Feasibility Study Team is scheduled for May 9-10, 1988.

The proposed building will be 12 stories and will include 125,000 net square feet of working space, of which approximately 70% will be laboratories and offices for scientific personnel. The site for the facility has been made available at no cost by The Texas Medical Center and is ideally located with respect to relationship to collaborating institutions. Being less than two hours by car from the main campus of Texas A&M University, the Institute will be easily accessible to faculty and graduate students who may need to work in The Texas Medical Center only on a part-time basis. There is also opportunity for collaboration from adjacent states such as New Mexico and Oklahoma as the research, education, and extension efforts expand regionally.

Mr. Chairman, The Texas A&M University System is proceeding with the design study, which it intends to fully fund, so that we will be ready to commence construction of the facility in early FY 1989. We anticipate a construction period of approximately 18 months and an occupancy date of early 1991. The Texas A&M University System has made a firm commitment through sale of bonds for its 50% of the funding for the facility.

We are convinced that this Institute, and the related research that it will spark in other parts of The Texas A&M

University System and The Texas Medical Center will become a national resource of inestimable value in a very short time after it is in place. We believe this because of:

(1) The growing problem of metabolic and diet-related disease

(2) The opportunities for sharing complementary scientific capability between these multiple medical, agricultural and engineering institutions to provide creative solutions to these problem and

(3) the resulting benefit to U.S. economic development in this country through new biotechnology industries that will be created as a result of this investment.

These considerations all speak clearly to the urgent need to proceed now with the funding of the facility for The Institute of Biosciences and Technology.

Mr. Chairman, we appreciate what has already been done by the Congress in providing the FY 1988 funding for the feasibility study; we look forward to your favorable consideration of FY 1989 funding for one-half the cost of this facility.

Thank you.

## AMERICAN HONEY PRODUCERS ASSOCIATION

### STATEMENT OF ROBERT M. BOR, WASHINGTON COUNSEL

Senator **BURDICK**. The next witness will be Robert Bor, Washington counsel, American Honey Producers Association.

Welcome to the committee.

Mr. **BOR**. Thank you, Mr. Chairman. It is a real pleasure to be here today, and I appreciate the opportunity to testify. I am appearing today on behalf of the American Honey Producers Association, an organization that represents the major honey producers in the United States. At the outset, we would like to thank you, Mr. Chairman, in particular, and the other members of the committee for the support that has been given the honey industry. It has been very substantial, and we are, indeed, very, very grateful.

As you know, the beekeeping and the honey-producing industry provide a significant service to American agriculture through pollination of crops. It is essential to the production of many crops and important for the maintenance of yields in many others. Beekeeping is hard work, and, according to a recent Penn State study, it is, in fact, the most labor-intensive of all agricultural enterprises.

Thanks to the efforts of many members of this committee and the efforts of others in Congress, the price support program is working. As you know, the program was changed with the 1985 farm bill to provide for a marketing loan program so that U.S.-produced honey could become competitive in domestic and foreign markets.

Already, the program has shown great success. Government inventories are disappearing; honey is being redeemed from loans and sold into the free market. Government stocks of honey have been reduced downward to a little less than 10 million pounds as contrasted with 65 million pounds a year ago.

Honey is no longer available for all of the various food donation programs. Imports have been reduced more than 50 percent since inception of the program. The Government costs are down substantially and are estimated to continue to decline.

As you know, there are periodic reductions in the loan rate of at least 5 percent each year. A couple of years ago, the honey program cost the Government some $89 million. In fiscal year 1987, it had declined to $73 million, and the costs are estimated by the Agriculture Department to decline further in fiscal year 1989 to $56 million. So in 2 years, it has gone down from $89 million to $56 million.

In late 1986, the program was hobbled by the combination of a $250,000 payment limitation on the marketing loan and a $250,000 limitation on loans that a producer could have outstanding at any one time.

The provision was unique to honey. All commodity programs were subject to a payment limitation that applied to marketing loan programs, but honey was the only commodity to which the loan limitation also applied. Because of this loan limitation and the problems it created in the redemption of honey under the marketing loan program, producers began to discount their honey.

Discounts were running 5 to 10 cents a pound below the world price. Markets were disrupted, and the county offices were subjected to a tangled web of communications in the handling of the program.

These restrictions became effective with the 1987 crop. In the reconciliation bill that was agreed to in December, Congress eliminated the discriminatory treatment that was accorded honey. The loan limitation, which created all the administrative complexities, was eliminated, but the $250,000 marketing loan payment limitation was maintained so that honey would be treated the same as all other commodities.

We solicit your continued help to maintain the program intact on the same basis as is the case with the other marketing loan programs. Despite the success of the program, the beekeeping industry is confronted with several serious problems.

First is a problem that results from two types of honeybee predators that are seriously threatening the industry, two different kinds of mites. One we called the varroa mite, the other the tracheal mite.

The other problem that the industry has is the potential invasion of Africanized bees that are advancing to our southern border. As a result of the varroa mite, Canada has closed its borders to exports of U.S. queens and package bees and quarantine restrictions have been announced by APHIS on the interstate movements of bees.

These restrictions threaten the pollination and the honey-producing industry. ARS has redirected funds and personnel to assist in finding solutions to these problems.

However, this is only temporary relief, and we are requesting an additional appropriation of $250,000. It is not much money, but $250,000, if it were earmarked to support two additional scientists at the USDA Beneficial Insect Laboratory in Beltsville, would help significantly to find solutions to the mite problem.

I might say, in passing, that the varroa mite was first discovered in this country last September, and from September until now, the mite has been found in every single State where honey is produced, where honeybees are pollinating crops with two exceptions: California and North Dakota. So North Dakota, at the moment, is one of the few States that is free of the mite, but I would say, given the rapid spread of this mite, that it will probably be in the Dakotas and California before the season is out.

The other thing that we would recommend is an additional sum to be earmarked for the Federal Extension Service for a full-time extension apiarist position. This is now funded as a part-time position, which is not adequate for the job.

This position is important in helping to inform the public on actions necessary to limit the effect of the swarming population of Africanized bees when they do come into this country, and we do expect them shortly to be noticed in the southern part of the United States.

It is also important to help to inform the honey producers on means of controlling mites and otherwise to maintain a healthy beekeeping industry.

Mr. Chairman, I would like to conclude by thanking you again for the opportunity to testify and for the great support that you have provided through the years to the honey industry.

Senator **Burdick**. Thank you. Mr. Bor, how imminent is the threat of the Africanized bee? What efforts can we take to keep the bee south of the border?

Mr. **Bor**. Well, we have had cooperative efforts with Mexico in trying to contain the bees in the southern part of Mexico, where you have a rather narrow section and, unfortunately, the bees are found now north of that area, and there is tremendous concern that in a relatively short period of time, they will have spread northward into Texas.

Once it arrives in the United States, it is going to be a problem. We hope that different techniques are being developed to contain any invasion of the Africanized bees essentially to domesticate the bees when they do arrive here in the United States.

Senator **Burdick**. If the mites you mentioned go uncontrolled, what damage would result in the honey industry? Would it be gradual or immediate and devastating?

Mr. **Bor**. Well, there is a recent press release that was put out by the Agriculture Department, and they say that the mite is a parasite, and it causes a decreased brood of bees. It deforms bees, and it weakens the ability of a colony to pollinate plants and produce honey.

The problem is that infestation occurs very gradually, so you don't notice the mite until very serious damage has been accomplished. There is a pesticide which can be used to help contain the mites, and under this quarantine system that the Department has provided, you can move the bees if they have been controlled with this pesticide for some 21 days.

But this produces some serious problems in terms of moving the bees to the areas in which they are needed in the United States during the season when the pollination is necessary.

Senator **Burdick**. Thank you very much.

[The statement follows:]

## STATEMENT OF ROBERT M. BOR

Mr. Chairman, I am appearing here today in behalf of The American Honey Producers Association, an organization that represents the major honey producers in the United States.

At the outset, we wish to thank you and the other members of the Committee for the support that has been given the industry. It has been substantial and we are very grateful.

As you know, the beekeeping and honey producing industry provides a significant service to American agriculture by the pollination of crops. It is essential to production of many crops and important to maintenance of yields in others. Beekeeping is hard work. According to a Penn State study, it is, in fact, the most labor-intensive of all agricultural enterprises.

Thanks to the efforts of many members of this Committee and the efforts of others in Congress, the price support program is working. The program was changed with the 1985 farm bill to provide for a marketing loan program, so that U.S. produced honey could become competitive in domestic and foreign markets.

Already the program has shown great success. Government inventories of honey are disappearing. Honey is being redeemed from loan and sold into the free market -- government stocks of honey currently have been reduced to 9.9 million lbs., as contrasted with 65.1 million lbs. a year ago. Honey is no longer available for all of the food donation programs. Honey imports have been reduced more than 50 percent since the inception of the program, and exports show a 91 percent gain since 1985.

Further, government costs are down substantially and are estimated to continue to decline. To reduce Government costs, the 1985 farm bill provided for the loan rate to decline each year. After the 1987 crop, the reduction was set at 5 percent per year. Further reductions in the loan rate were provided in the Omnibus Budget Reconciliation Act of 1987. Between 1986 and 1988, the loan rate will have been reduced 5 cents to 59.1 cents per lb. The honey program cost the government $89 million in the year ending September 30, 1986; in fiscal year 1987, the first year of the program, it declined to $73 million; and costs are estimated to decline to $56 million in fiscal year 1989.

In late 1986 the program was hobbled by the combination of a $250,000 payment limitation on the marketing loan and a $250,000 limitation on loans that a producer could have outstanding at any one time less the amount of any marketing loan payments.

The provision was unique to honey. All commodity programs were subject to a payment limitation that applied to marketing loan programs but honey was the only commodity to which the loan limitation also applied. The loan limitation impacted over half the U.S. honey production. Before a producer could obtain a loan of more than $250,000, he had to redeem his honey from loan. To do this he had to find a ready market. He could not put all his honey under loan and gradually redeem the honey through the marketing season. Because of the pressure to market honey under loan -- so more honey could be put under the loan program -- producers began to discount their honey. Discounts were running from 5 to 10 cents per pound below the world price.

Markets were disrupted and the ASC county offices were subjected to a tangled web of complications in the handling of the program.

These restrictions became effective with the 1987 crop. In the reconciliation bill agreed to in December, Congress eliminated the discriminatory treatment accorded honey. The loan limitation which created all the administrative complexities was eliminated, but the $250,000 marketing loan payment limitation was maintained so that honey would be treated the same as all other commodities.

We solicit your continued help to maintain the program intact on the same basis as other marketing loan programs.

Despite the success of the program, the beekeeping industry is confronted with serious problems as a result of two types of honey bee predators that are seriously threatening the industry -- the varroa mite and the tracheal mite -- and by the potential invasion of Africanized bees that are advancing to our southern border.

As a result of the mite, Canada has closed its borders to exports of U.S. queens and package bees, and quarantine restrictions announced by APHIS on the interstate movements of bees threaten the pollination and honey producing industry. ARS has redirected funds and personnel to assist in funding solutions to these problems. This may be temporary relief. We request an additional appropriation of $250,000 to be earmarked to support two additional scientists at the USDA Beneficial Insect Laboratory in Beltsville to work on finding solutions to the mite problem.

We also recommend that an additional sum be earmarked for the Federal Extension Service for a full-time extension apiarist position. This is now funded as a part-time position which is not adequate for the job. This position is important in informing the public on the actions to limit the effect of swarming populations of Africanized bees, inform the honey producers on means of controlling mites, and otherwise to maintain a healthy beekeeping industry.

I will conclude by thanking you again for the opportunity to testify and for the support that you have provided through the years to the industry.

## CONCLUSION OF HEARINGS

Senator **Burdick**. This ends today's hearing and concludes our review of public witness testimony. I would like to thank each witness who, over the last 3 days, has shared their time and expertise in order that the subcommittee might better understand how these agriculture and rural development programs affect them.

That concludes the hearings. The subcommittee will recess and reconvene at the call of the Chair.

[Whereupon, at 4 p.m., Thursday, April 28, the hearings were concluded and the subcommittee was recessed to reconvene at the call of the Chair.]

# SUBMITTED STATEMENTS AND LETTERS

[CLERK'S NOTE: The materials which follow were submitted in lieu of an appearance before the subcommittee. The subcommittee wishes to assure each of those who submitted these materials that the information will be considered to the same degree as testimony which was read or submitted at the hearings.]

## STATEMENT OF HON. PHIL GRAMM, U.S. SENATOR FROM TEXAS

Mr. Chairman, I appreciate having the opportunity to offer some of my thoughts on items that may be considered in the FY-1989 Department of Agriculture Appropriations bill that is now under consideration in your subcommittee. Although you will be considering a number of programs and projects that are important to my state, I wanted to specifically bring to your attention two items that are of special interest to me--biotechnology and plant stress research.

One of the most important areas of agriculture that has emerged in recent years is biotechnology. I am confident that biotechnology will become increasingly prominent in the years ahead as scientists further link medical problems with food content and consumption. Some life-threatening medical problems, such as arteriosclerosis and colon cancer, are directly related to diet and most treatment efforts prescribed by physicians for these problems focus on diet modification, control or alteration.

Texas has played a major role in the emergence of this vital technology. Moreover, Texas A&M University is attempting now to complement existing biotechnology studies in Texas through the establishment of the "Institute of Biosciences and Technology." This $50 million facility is proposed to be part of the Texas Medical Center Complex in Houston, where world-class health and medical research is now being conducted by the 37 separate institutions that make up the complex.

You are familiar with the outstanding agriculture, veterinary and engineering expertise that exists at Texas A&M. As part of the proposed Institute of Biosciences and Technology, this expertise would be combined with the health and medical expertise that characterizes the Texas Medical Center to make up what I consider the most unique and qualified entity to enable us to pursue the opportunities afforded by this growing technology. If any single entity can maximize the potential biotechnology offers to our country's health needs, economic development and competitiveness in agriculture, medicine and high technology, this is the combination of the resources we need to make these prospects a reality.

In recognition of this promising venture at the Texas Medical Center and its potential contribution to our society, the Senate Appropriations Committee approved $50,000 through the FY-88 Continuing Resolution for a feasibility study on this project. The USDA should have this study completed by June, and I am confident that it will conclude that this project is in our nation's interest.

If you believe that biotechnology should be a high priority in the upcoming agriculture appropriations debate, as I do, I urge you to carefully consider the tremendous merit of the proposed Texas A&M-Texas Medical Center venture. The total venture will be approximately $50 million, with funding of $25 million already secured through private, state and university sources. The USDA is already authorized to fund a project of this nature and magnitude through its Cooperative State Research Service, and I am hopeful it can be funded in the near future with your assistance.

I would also like to express my support for the Texas Tech Plant Stress and Water Conservation Research Program in Lubbock. Since 1978, this cooperative venture between Tech's College of Agricultural Sciences, the U.S. Department of Agriculture's Agricultural Research Service and the Texas Agricultural Experiment Station has conducted outstanding research on problems associated with crop production in the arid and semi-arid regions of the United States.

The importance of such work cannot be overemphasized. For half a century, this region of the country has been the source of a large portion of the United States' production of cotton, grain sorghum, wheat, corn and vegetables. However, as concerns rise over the depletion of water resources, and the costs of pumping irrigation water from aquifers such as the Ogallala increase, the research being conducted through this program becomes ever more important.

Since the program's beginning, it has grown from two scientists to a present staff of 17 scientists receiving some, or all, of their research funding from the program. Unfortunately, however, the central laboratory recommended for the program by the 1978 U.S. Department of Agriculture feasibility study has never been constructed. Consequently, the program is being conducted at several locations, including renovated and temporary facilities several miles from the Texas Tech campus.

The research being conducted through this program may well determine whether agriculture will continue to be a viable industry in these arid parts of the country. Furthermore, the program's emphasis on water conservation may help avoid future crises with respect to depletion of our nation's water resources.

I believe the significance of the research being conducted through the Texas Tech Plant Stress and Water Conservation Research Program warrants serious consideration by this committee of the University's request for funding to construct this long-overdue research laboratory. I'm sure you are aware that legislation authorizing this construction passed the House of Representatives last year and was recently reported by the Senate Agriculture Committee.

In conclusion, Mr. Chairman, I urge you to carefully consider the merits of both programs and try to address their needs through the FY-89 agriculture appropriations bill. I recognize the tight budgets we must adhere to and understand the need to prioritize all federal spending. I believe the investment potential of both programs I have mentioned make them high priorities and deserve the full attention of your subcommittee.

Thank you for your consideration of my views on these matters, and if I may be of service to you as the appropriations bill is considered in your subcommittee, please let me know.

## STATEMENT OF HON. CHIC HECHT, U.S. SENATOR FROM NEVADA

Mr. Chairman, I appreciate the opportunity to express my views and recommendations concerning the President's fiscal year 1989 budget request for the Department of Agriculture. There are two areas which are of particular importance to the State of Nevada which I would like to highlight in my comments -- competitive research grants and the Colorado River Basin Salinity Control Program.

The Department of Agriculture's competitive research grants program is one of the most successful ways for moving dollars to western state universities and land grant colleges, which are best suited to carry out research of vital importance to arid environments such as Nevada.

Arid environments have many research needs and priorities crying out for immediate attention. No doubt, you are aware of the predictions of another severe drought this summer in the West. Spring runoff is well below normal, and steps are already being taken to thin cattle herds, for which there will not be sufficient forage, and to drastically reduce water consumption. Last summer, the wildfire season was particularly devastating and costly, and the coming season promises to be just as bad, if not worse.

Greenstripping, a technique of seeding a strip of fire retardant grass along a valley or mountain front to stop the advancement of wildfires, needs to be demonstrated and evaluated for its usefulness in fire presuppression. Also, research information on how best to revegetate areas denuded by wildfires is extremely limited. Without research answers, many burned areas will convert to cheat grass, a weedy highly flammable and undesirable plant.

These are only two of a host of research projects of importance to arid states like Nevada which could be pursued if western state universities and land grant colleges can successfully compete for available funds. But of course, the funds must first be made available. I am pleased that the President's FY 1989 budget actually recommends an increase of a little over $12 million over the FY 1988 budget for competitive research grants, and request that the committee preserve at least this level of funding in its deliberations.

Mr. Chairman, I would like to request the committee preserve and even slightly increase the Colorado River Basin Salinity Control Program, which the Administration is proposing to zero fund. I endorse the Colorado River Basin Salinity Control Advisory Council's funding proposal totaling $8 million: $5 million for cost-sharing onfarm salinity control and $3 million for Soil Conservation Service and other associated technical assistance. This is only $.5 million above the $7.5 million available for the program in FY 1988 and can be justified because the program is in the early stages of implementation and has generated a good deal of interest. I understand there are a large number of applications by farmers who are interested in participating in this cost-sharing program. Furthermore, in FY 1989, the program is to be expanded to include two additional geographic areas. The southeastern portion of Nevada, which is part of the Colorado River Basin and includes Lake Mead, is scheduled to come under a salinity control plan in future years. In order for the Department of Agriculture's program to proceed efficiently and on schedule, a FY 1989 funding level of $8 million is mandatory.

High salinity levels carry significant economic consequences and seriously impair the quality of the Colorado River's water, which serves some 18 million people and irrigates approximately 1.6 million acres of land in parts of the seven Colorado River Basin states. The program is striving to maintain salinity concentrations at or below those found in the lower reaches of the river in 1972, a standard which the Environmental Protection Agency has approved pursuant to the Clean Water Act. With increasing demands for Colorado River water in the Basin, the river's salinity is bound to increase, further impairing water quality. To not continue funding for this vital program now will cost everyone much more in the future in terms of "catch up and clean up." Mr. Chairman, I respectfully request the committee to preserve this program by providing the level of funding recommended by the Colorado River Basin Salinity Control Advisory Council.

I want to thank the Subcommittee again for giving me the opportunity to express my views and recommendations on the President's proposed FY 1989 budget for the Department of Agriculture.

## STATEMENT OF HON. JAIME B. FUSTER, RESIDENT COMMISSIONER FROM PUERTO RICO

Mr. Chairman, distinguished members of the Subcommittee: I appear before you today once again on behalf of the 3.5 million American citizens of Puerto Rico to discuss a matter which has been considered by this Subcommittee several times before-- the need to fully implement cost-of-living adjustments for Puerto Rico's Nutritional Assistance Program.

As you will recall, the Omnibus Budget Reconciliation Act of 1981 substituted Puerto Rico's participation in the Food Stamp Program with a block grant capped at $825 million annually- a funding level 25% below what the Island was then receiving. In order to cope with this reduction, Puerto Rico was forced to remove approximately 100,000 needy families from the public assistance rolls, and reduce benefit payments to the remainder. For five fiscal years thereafter, from 1982-1987, the Nutrition Assistance Program did not receive any increase for inflation, despite the fact that food costs in Puerto Rico are generally higher than on the mainland, and also despite the fact that food costs on the Island rose at a higher rate than costs on the mainland. Moreover, while cost-of-living increases were provided regularly for the Food Stamp Program on the mainland, Puerto Rico had to bear the accumulated increases in food costs, which substantially eroded the purchasing power of the original block grant.

In order to partially remedy this situation, the 99th Congress enacted the Food Security Act of 1985, which provided modest inflation adjustments for the Nutrition Assistance Program: 3% in FY 1987, 3% of the FY 1987 amount for FY 1988, and so on, until FY 1990.

Then, as now, we faced serious budgetary constraints. Despite these concerns, Congress took this step in order to partially address the grave deficiencies in the existing funding levels for this program. Congress recognized, even at a time of budgetary restraint, that these modest cost-of-living adjustments were fully justified by the accumulated increases in food costs which, over the span of four years-- from 1982-1986-- had substantially diminished the purchasing power of the assistance that needy households receive. By 1985, the real value of the scaled-back original block grant had declined by 21.8%.

These funds are vitally needed, and I am glad to be able to report that even the Administration has finally come to recognize that need. The President's FY 1989 Budget Request supports full funding of this program at the $908 million level, as authorized under the Food Security Act of 1985. The House Budget Committee, in its recently-reported Budget Resolution for Fiscal Year 1989, has made a similar recommendation.

Mr. Chairman, it has been said that a decent provision for the poor is the true test of a civilization. On behalf of our citizens, I urge you to approve full funding of the cost-of-living adjustment for the Nutritional Assistance Program for FY 1989.

## STATEMENT OF THE AMERICAN ASSOCIATION OF NURSERYMEN

The American Association of Nurserymen (AAN) welcomes this opportunity to present the nursery industry views regarding the Fiscal Year 1989 budget for the U.S. Department of Agriculture. AAN is the national trade association of the nursery, landscape, and garden center industry. We represent more than 4,300 firms across the country engaged in all aspects of the green plant industry — its grower, landscape, and retail segments. By almost any standard, our members are primarily small, family-owned farms and businesses. The retail value of nursery crops sold in the United States in 1987 was estimated to be $6.35 billion.

The demand for nursery industry products is growing perhaps more than any other agricultural sector. This demand may be attributed to the major uses of the products of the nursery industry which include: 1) trees, shrubs, vines and groundcover plants used in the landscape to improve the quality of our environment; 2) fruit and nut trees, berry plants, and grapevines used by commercial growers and home owners; 3) trees and other plants used as windbreaks, to prevent soil erosion, to block unwanted sights and sounds, to remove air pollutants and to conserve energy; and 4) seedlings for Christmas tree production and the reforestation of private woodlands. When coupled with the satisfaction and added value derived from a well landscaped residence or business, these functional uses of plants have substantially increased the demand for the nursery industry's products and services.

In view of this increasing demand, and to ensure that nursery plants continue to be available for improving the quality of our environment and saving valuable natural resources, AAN has annually been invited by this Committee to submit testimony highlighting important areas of research which require the immediate and serious attention of this Committee and Congress as a whole.

At the same time, the nursery industry is committed to a significant reduction in the federal deficit. Our members understand all too well the potential danger to our economy of an unchecked and growing budget deficit. Traditionally, the nursery industry has never looked to the government for handouts. The nursery industry is prepared to make the necessary sacrifices to help achieve our nation's economic goals. As a result, we have painstakingly crafted our recommendations to balance our deep concern over the federal deficit with the critical need to maintain the integrity of research programs which are absolutely vital to the nursery industry. You will note that AAN's recommendations reflect careful study and propose modest increases at best. We believe that the federal government's contribution to research is a reasonable expenditure of federal funds, particularly since nursery farmers neither ask for, nor receive, crop subsidies or other federal support; thus AAN urges Congress to provide the critical funding as outlined herein.

### CSRS PESTICIDE PROGRAMS

We wish to thank Congress for recognizing the need to continue funding the Cooperative State Research Service (CSRS) and its special research grants for Pesticide Clearance and Pesticide Impact Assessment. In so doing, Congress continues to recognize the problem whereby producers of so-called "minor use" crops, such as those produced in nurseries, frequently find themselves without adequate chemical pesticides to meet quarantine requirements or even the market demand for high quality plants. At least 40 percent of the nursery farmer's products either move in interstate commerce or are exported. This movement is based on nursery crops meeting quarantine requirements. This necessitates 100 percent pest-free plants which require effective chemical pesticides. Thus the nursery farmer must be insured the availability of reasonably priced, safe, and effective pesticides so as not to impede interstate movement of nursery corps.

## Pesticide Clearance

The continued funding of the Inter-Regional Project #4 (IR-4) has greatly assisted the industry's efforts to obtain more prompt pesticide registrations for nursery crops when such pesticides are already registered for use on food or feed crops. Without the IR-4 program, it would be necessary for nurserymen to wait six to ten years for needed pesticide registrations -- if such were to be granted at all. However, the current funding levels for the IR-4 Pesticide Clearance Program are not adequate to address more than 25 percent of the food-use projects on the books which can be researched. As a result, the IR-4 publicly admits, that they will maintain the food-use program at the expense of the "ornamental" or non-food, program. In fact, the "ornamentals" research program (which includes nursery crops) has been severely reduced, and only 50 percent of the projects have active research underway. As result, AAN requests that at least $2.2 million be provided to fund the Pesticide Clearance Program and increase the active research level on nursery crops to 100 percent. In addition, we strongly urge Congress to elevate the IR-4 funding from a special grant to a standard line-item in the USDA budget.

## Pesticide Impact Assessment

As mentioned previously, we do thank the Congress for reinstating the funds for Pesticide Impact Assessment in FY88. We also support the Administration's budget increase for this CSRS special research grant in FY89 which would bring total funding to $2.468 million. We also urge increased cooperation between the Pesticide Clearance and Pesticide Impact Assessment programs for greater efficiencies and more effective research.

## AGRICULTURAL RESEARCH SERVICE

Once again this year, we thank both Congress and the administration for continued and increased support of the Agricultural Research Service (ARS) -- particularly its research programs on plant productivity affecting horticultural crops, including those produced by the nursery farming community. We also appreciate that, following the recommendations the U.S. National Arboretum Advisory Council, ARS has added a germplasm specialist to the U.S. National Arboretum's staff to collect, evaluate, and preserve woody landscape plant germplasm.

However, the nursery industry needs the ARS to integrate an interdisciplinary approach to research involving nursery products -- plants which improve and enhance the quality of man's environment. ARS needs to strengthen and reinforce existing nursery crops research programs, but not at the expense of traditional research positions. As a result, AAN urges that $450,000 be allocated within the proposed ARS plant productivity budget to assure that the nursery crops research programs are strengthened and reinforced, and that additional curators be added to the appropriate ARS staff.

The American Association of Nurserymen also strongly urges ARS to continue pesticide tests on both field and container-grown nursery crops with a continued ~~commitment~~ to finding pesticides which will enable nursery farmers to meet quarantine requirements for Japanese beetle on nursery crop shipments to Canada. At least $10 million in annual export sales is being lost as American nurserymen are unable to ship plants to Canada under existing quarantines.

We also encourage ARS to develop a more rapid method of distribution of the improved plants which ARS scientists develop. In this way, nurseries will have more time to evaluate and propagate newly released plant varieties. In so doing, the consumer also benefits by having access much sooner to these new and improved plant varieties.

AAN again concurs with the recommendation of the U.S. National Arboretum Advisory Council for the establishment of a germplasm repository for woody landscape plants. We urge the Committee to allocate $200,000 for the establishment of this clonal repository.

The need remains strong for the National Arboretum to continue as a national center of excellence in education and research concerning woody landscape plants. However, the need for additional office and laboratory space for such research activities is even greater. Therefore, we strongly support the relocation of that portion of the Arboretum herbarium which does not directly relate to Arboretum activities. Such relocation, in combination with the installation of compactors for the remaining materials, will provide valuable space that can be best utilized as research offices and laboratories.

AAN concurs with the recommendation of the National Arboretum Advisory Council that a means be found to restore portions of the brickyard and demolish the remaining structures. Potential hazards and the unsightly appearance of the brickyard foster an early resolution to this problem.

The nursery industry has become increasingly concerned over the quality of this nation's precious surface and groundwater resources. The need for an accelerated research effort to alleviate surface and groundwater contamination, and the development of integrated systems for managing and conserving water, has never been greater; and these needs only continue to increase. As a result, AAN strongly urges Congress to consider consolidation of authority and funding for water quality and management research programs with one federal agency: the Agricultural Research Service at the Department of Agriculture. Major research initiatives could focus on: (1) sources, prevention, and control of water pollution; (2) the fate of chemicals including persistence, mobility, transformation, and aggregation in the soil and water system; (3) treatment of contaminated soil and water to improve water quality; and, (4) risk assessment to address toxological, economic, social, legal, and political consequences of water quality and management programs.

## COOPERATIVE STATE RESEARCH SERVICE

With increasing regularity, more and more states are reporting nursery crops to be the leading agricultural commodity with the highest farm value in those states. This important factor is evidently being overlooked by many State Agricultural Experiment Station (SAES) Directors, as evidenced by the January 1988 "Research Initiatives: A Midterm Update of the Research Agenda for the State Agriculture Experiment Stations" prepared by the Experiment Station Committee on Organization and Policy in cooperation with the Cooperative State Research Service. This document prioritized 21 national and regional research initiatives. We concur with the importance of the "top" five priorities [1) maintaining and protecting water quality and quantity; 2) bio-technology; 3) genetic improvement of economically important plants; 4) sustaining soil productivity; and 5) improving management of crop pest, and diseases]. However, we believe very strongly that research on "plants for the urban environment" should be given a much higher ranking than #21!

As the report notes, "The production of plants used in the urban environment is a rapidly expanding area of agriculture in the United States. The economic impact of this segment of production agriculture is greater than that of many other horticultural and row crops." These facts alone substantiate our request for a higher priority and increased funds for research on "plants for the urban environment."

AAN urges the SAES Directors to include additional research disciplines as a part of "Research Program 3:15 - "Plants which Enhance the Environment." These would include marketing research on: 1) supply, demand and price relationships; 2) market efficiency and performance; 3) consumer preferences and quality; and 4) market strategies. Likewise, such Research Initiatives from the report mentioned above as #8, "New and Expanded Uses of Agricultural Products," and #9, "Integrating Agricultural Technologies," including capital investment and financial requirements, should be applied to nursery crops research initiatives and objectives.

We are pleased that Congress continues to recognize the SAES system as being effective, and had provided for an increase for FY88 in its funding base -- Hatch Act formula funds. Even though less than requested, the increase was appreciated. For FY89, AAN supports a funding level of at least $165.5 million.

In addition, erosion of funding over the past few years has resulted in a critical need for two new national research programs. First is the need for $20 million to improve the scientific equipment of publicly supported agricultural research centers. We propose that 50 percent of these funds be made available equally to each state on a matching-fund basis, and the remaining 50 percent be made on a competitive basis by peer review of proposals. Second is the need to improve research facilities in these same centers. Again, $20 million is needed and all such funds should be made available on a matching basis.

## ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

### Japanese Beetle

While there are no funds designated for the Japanese beetle quarantine under the proposed FY89 APHIS budget (just as there were none in 1985 through 1988), there remains a limited, yet significant, role for APHIS in coordinating information regarding the natural spread of this pest. APHIS also has the responsibility to certify nursery crops free of Japanese beetle in order to meet quarantine requirements for shipment into Canada, the principal foreign market for U.S. nursery plants. However, since the 1979 cancellation of chlordane for nursery uses, a pesticide has not been available during the production cycle to enable nurserymen to meet Canadian certification requirements. As a result, U.S. nurserymen continue losing approximately $10 million in annual sales because they cannot meet these requirements.

The Agricultural Research Service has conducted research to find a suitable chemical that Canada will accept for treatment of nursery crops entering that country, but success has been limited. It appears unlikely that protocol to meet Canadian requirements will be developed in the near future, even though the problem is now almost ten years old. In the meantime, those nurserymen who desire to ship to Canada are being forced to use special treatments with exorbitantly expensive pesticides.

AAN thanks APHIS and ARS for their recent efforts to expedite protocol development. We urge APHIS in the strongest terms to move forward with its negotiations with Agriculture Canada to modify the Japanese beetle quarantine. We also urge APHIS to insure that shipments of Canadian nursery stock entering quarantined areas of the U.S. are free from Japanese beetle. Adequate funds should be appropriated to deal effectively with the Japanese beetle problem, otherwise the Japanese beetle should no longer be considered a quarantined pest and U.S. nursery growers should not be penalized.

### Imported Fire Ant

Due to imported fire ant quarantine regulations in the South, some nurserymen are facing considerable difficulty in shipping their plants outside generally-infested areas. AAN strongly urges that the imported fire ant program be continued at funding levels originally proposed by APHIS for FY87 and not be totally eliminated. AAN believes that total elimination of the program will create a situation within the U.S. much worse than that already caused by Japanese beetle between the U.S. and Canada. Nurserymen should have unimpeded movement of their crops throughout the United States. As result APHIS should more actively support improved control and regulatory techniques in the Imported Fire Ant Program.

### Gypsy Moth

Nursery plants are often regulated to protect other agricultural crops, as well as forest and landscape plants about our homes, offices, parks, and along our highways, from pests that are not serious pests of nursery crops. Like the imported fire ant, the gypsy moth is such a pest. As gypsy moth continues to spread into heretofore uninfested areas of the states, it is very important that APHIS play a very strong role in preventing such spread.

APHIS must continue its leadership role with the state Departments of Agriculture of those fortunate states which have not had to contend with this ravenous pest. There is a continuing need for APHIS to be involved in gypsy moth quarantine activities and to serve as an arbitrator in working out regulations between infested and noninfested states. AAN supports the proposed increase in funding for the APHIS Gypsy Moth Program.

### Golden Nematode

Although there are no funds allocated in the FY89 budget for Golden Nematode control programs, there is a significant role for APHIS in helping eradicate this pest. If funds are not allocated to programs to control golden nematode, nurserymen in several states may be unable to continue shipments of nursery crops into noninfested areas. In New York alone, approximately 9,000 acres of nursery crops may be negatively affected by a lack of proper control of golden nematode. AAN strongly urges APHIS to endorse golden nematode programs and allocate necessary funds for this purpose.

### Agricultural Inspection

It is the objective of APHIS to protect the nation's animal and plant resources from artificial introduction and spread of hazardous insects and diseases. Therefore, Congress, the Administration, and the citizens of the United States should look upon the role of APHIS as preventative in purpose. APHIS is to be sincerely congratulated for its success in preventing the artificial introduction into this country of many of the world's most destructive plant insects and disease. Despite tight budgets, APHIS continues to be very innovative either in eradicating those few new introductions of plant pests that slip in, or in successfully retarding the spread of new pests until acceptable means of controlling them economically have been determined. AAN strongly supports the proposed increased appropriations for inspection programs. On the other hand, we are very concerned that the recommendations of the APHIS Technical Advisory Panel will have a detrimental impact on quarantine programs for so-called "minor crops" even though growers of such crops have long supported the role of APHIS in this area.

The American Association of Nurserymen further endorses the proposed APHIS FY89 budget for increased activities regarding witchweed. In the interest of supporting American agriculture, we strongly believe, that as fewer and fewer pesticides are available for quarantine purposes, it is even more vital that APHIS maintain a visible role in plant pest control in the nursery industry.

## EXTENSION SERVICE

We were pleased that the Committee concurred with the nursery industry's view that the U.S. Extension Service and its agents are a logical point of dependability for those seeking information about producing a fairly complicated product. We in the nursery industry are fortunate that they are there. In addition, one of the main problems facing people in urban areas is the proper care of the nursery industry's products so that they may serve their function of enhancing the environment. We therefore very much need the extension agent's help in relating information about the industry's green growing products to the consumer.

We thank Congress for appropriating an additional 1.6 percent as requested last year to $241.6 million. AAN requests Smith-Lever funding for FY89 at least at this same level. We also strongly urge restoration of the Smith-Lever Act 3(d) program for Pest Management at $7.5 million. Likewise, we greatly appreciated Committee restoration of funding for Pesticide Impact Assessment in FY88, and support the Administration's proposed funding increase for this program in FY89.

As in years past, the American Association of Nurserymen is truly grateful for the opportunity to present the views of the nursery industry with respect to agricultural research to you and your Committee. Thank you.

## STATEMENT OF FRANK A. ROBINSON, SECRETARY-TREASURER, THE AMERICAN BEEKEEPING FEDERATION, INC.

I am Frank Robinson, Secretary-Treasurer of the American Beekeeping Federation, a national organization whose 2500 members, coming from all 50 states, represent all segments of the beekeeping/honey industry. After struggling just to survive the adverse economic conditions of recent years which resulted in a decrease of more than 25% in the total numbers of colonies in this country just since 1985, the industry now faces new problems which may have an even worse impact if they are not resolved quickly. We appreciate this opportunity to present testimony supporting our request for additional funds for the USDA Agricultural Research Service and Federal Extension Service to support an expanded research program about varroa and tracheal mites of honey bees and a full-time extension specialist to develop and lead the public information and training program so desperately needed before the africanized bees reach this country.

The africanized bees, now moving through southern Mexico, are expected to reach this country sometime in 1990. No one knows just how effective the joint U.S.-Mexico effort, which is currently underway in southern Mexico, will be in modifying the behavior of these bees. The first line of defense in slowing down the replacement of our present honey bees with the africanized bee and reducing or possibly preventing the numerous stinging incidents of wild or domesticated animals, and even people, is a large healthy beekeeping industry (particularly those involved in producing queens or packages). By frequent and regular requeening the Africanization of managed colonies can be prevented. Not only will these colonies continue to be more productive and easier to handle but they will also provide a source of non-african germ plasm so that naturally occurring crossbreeding may modify at least some of the africans' most objectionable traits.

However, an extensive educational training program must be started as quickly as possible so that the public is informed about the importance of maintaining a strong beekeeping industry. They must also be instructed as to how they can reduce the chances that serious stinging incidents will occur and a core of specialists should be trained on the proper ways of capturing and destroying swarms in populated areas. So that this effort can get underway, we are asking that an additional $150,000 be earmarked for the Federal Extension Specialist Apiculture/USDA position and that it be funded as a full-time position. Currently this position is supported by the FES Administrator from contingency funds as a part-time position which is not adequate for the task at hand.

We are also asking that $250,000 additional funding be made available to the USDA Beneficial Insect Laboratory in Beltsville, MD, and that these funds be earmarked for expanded research on the varroa and tracheal bee mites.

These two honey bee predators, which have only recently been found in the United States, seriously threaten the continued existence of our beekeeping industry. Already the multi-million dollar market for U.S. queens and package bees has been lost when Canada closed its borders to bees from the U.S. and quarantine restrictions, recently announced by APHIS/USDA, regulating the interstate movement of bees now threaten the pollination and honey producing industry in this country, as well as producers of those crops which require pollination by honey bees.

Responding to this new emergency the USDA Agricultural Research Service has, by the "redirection" of funds and scientific personnel, made a significant effort to find solutions to these mite related problems. However, there is a limit to how many resources can be redirected, and for how long, before other problems get out of hand. The $250,000 being requested should adequately support two scientists and with this additional effort, solutions to these mite problems should soon be available.

I thank this committee for listening to these comments and, if there are any questions I will be glad to try to respond to them.

## STATEMENT OF THE AMERICAN HORSE PROTECTION ASSOCIATION, INC.

The American Horse Protection Association, Inc. appreciates this opportunity to express its views concerning the Fiscal Year 1989 appropriation for the Animal and Plant Health Inspection Service's program to enforce the Horse Protection Act. AHPA is a nonprofit national humane organization dedicated to the welfare of horses, both wild and domesticated. Since its incorporation in 1966 the prevention of abuse to show horses, and especially Tennessee Walking Horses, has been among its principal areas of interest and concern.

APHIS has requested an appropriation of $161,000 for its Horse Protection Act enforcement program during FY 1989; it is the smallest line item in the entire $297 million APHIS budget estimate. AHPA believes that appropriation to be far below what is necessary to meet the objectives of the Act, especially in light of the low funding levels of the last five years. Accordingly, for the reasons described below, AHPA recommends that the Subcommittee increase the appropriation to $450,000.

Concern for show horse abuse -- particularly among Tennessee Walking Horses and similar gaited breeds -- led Congress to pass the Horse Protection Act in 1970. Pub. L. No. 91-570, 15 U.S.C. §1821 et seq. "Soring", as the abuse is commonly known, usually involves the infliction of pain to the horse's feet and legs to accentuate its naturally animated gait and hasten the training process. The Act was substantially amended in 1976 to expand the kinds of conduct that were prohibited and to strengthen the Agriculture Department's enforcement capabilities. Pub. L. No. 94-360.

Throughout the history of the Act, Congress and the Agriculture Department have understood that there is a close relationship between soring and the kinds of "action devices" and shoes that a horse wears, especially if the effects of the devices and shoes are accentuated by making the animal's feet and legs painful through the application of chemical irritants or blistering agents.[1] H.R. Rep. No. 94-1174, 94th Cong., 2d Sess. 4-6 (1976); S. Rep. No. 94-418, 94th Cong., 1st Sess. 2-3 (1975); 43 Fed. Reg. 18514, 18561-18 (April 28, 1978); 44 Fed. Reg. 25172, 25173-74 (April 27, 1979). As a result, enforcement under the Act has focused in part on prohibiting the use of equipment and techniques that reasonably can be expected to sore a horse. APHIS field enforcement at horse shows is intended to detect horses that show evidence of being in pain prior to or after exhibition.

Since late 1984 the Association has been engaged in litigation with the Department of Agriculture over the validity of portions of its Horse Protection Act regulations that have permitted certain kinds of action devices and padded shoes. On March 21, 1988, the United States District Court for the District of Columbia ruled that the challenged regulations permitted the use of devices and techniques that reasonably could be expected to sore horses, and declared them invalid. The Court ordered the Department immediately to institute rulemaking proceedings to replace the invalidated sections with rules consistent with the Act. A copy of the Court's opinion, and earlier opinion by the Court of Appeals for the District of Columbia Circuit, have been submitted for the record.

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[1] The most common action device is a chain of ten ounces, which is worn bracelet-fashion around the horse's lower front legs, so that it strikes the pastern area as the horse strides. Furthermore, the shoes wore by most Tennessee Walking Horses are built up with plastic or leather pads inserted between the hoof and horseshoe; the pads are normally 3½ to 4 inches thick.

Although much of the evidence before the Court dealt with the ability of the devices and shoeing techniques to sore horses, a substantial portion of the evidence related to the sophistication of soring techniques now in use and the weaknesses of current examination methods in detecting them. In the early 1970s sore horses often had open wounds on their lower front legs; today, visible evidence of soring is usually absent or concealed, and horses are trained, or "stewarded", not to react to pain when their legs are examined. In addition, because most of the enforcement under the Act is left to Designated Qualified Persons (DQPs) appointed by horse show management (15 U.S.C. §1823(a)), industry self-enforcement is the rule. This apparently has led to inconsistent detection of sore horses; DQP disqualifications of sored horses are substantially higher at shows when APHIS personnel are present that at shows attended by DQPs alone.

As a result of these factors, the Court concluded that APHIS statistics concerning the number of horses disqualified from showing by DQPs pursuant to the Act were not a reliable indicator of the number of animals that actually were sore. AHPA and its witnesses believe that soring is far more common than APHIS data implies, in part because of inadequate inspection and detection methods.

AHPA hopes that the new rulemaking will help achieve the goals of the Horse Protection Act by eliminating all of the devices and techniques that are likely to sore horses. However, it is well understood that horses can be sored using a variety of techniques that do not depend on action devices or padded shoes. Therefore, the new rules will not, in themselves, entirely solve the problem of soring.

Furthermore (and although AHPA would vigorously oppose such a result) it is entirely possible that the new rules will permit action devices of lesser weights than have been allowed in the past, or will allow some form of padded shoe. The interim Horse Protection Act regulations published by AHPIS on April 25, which are intended to govern the 1988 horse show season until the formal rulemaking process can be completed, have adopted this approach. While APHIS may ultimately conclude that some form of action device or padded shoe will not sore a horse if used properly, the history of Horse Protection Act enforcement suggests that almost any action device or padded shoe can, and will, be abused to accomplish soring. In fact, the now-invalidated regulations were promulgated on the assumption that the devices and shoes they allowed would not sore a horse.

Under the circumstances, APHIS enforcement must be made substantially more comprehensive and effective than it has been in the past. This is necessary in part to bring more horse shows within the ambit of direct USDA enforcement, to insure that DQP inspections are adequate and to have as many horses as possible inspected by APHIS personnel. In addition, pre- and post-show examination techniques must be made more thorough and reliable to prevent unscrupulous horsemen from continuing to sore horses by using practices that have thus far largely escaped detection. Among the concerns triggered by the Court ruling, for example, is that some horsemen will rely even more on chemical soring techniques to produce the same "big-lick" gait while using lighter action devices and smaller shoes. Finally, civil and criminal enforcement actions must be prosecuted more often, and more vigorously.

In 1976, when Congress enacted the Horse Protection Act amendments, it authorized appropriations of $500,000 per year to enforce the Act. For at least the last five years funding has been less than one-third that level. It is clearly inadequate.

AHPA recommends that FY 1989 funding be increased to $450,000. The proposed level of enforcement activity should be increased by at least 50 percent, which would probably require funding at the $250,000 - 300,000 level. The remaining appropriation should be made available to develop new inspection techniques (e.g., to detect whether illegal substances have been used on the horse's limbs to enhance or inhibit pain), and to purchase new detection equipment, including thermography equipment.

As long ago as 1975, AHPIS concluded that thermographic detection of soring was the single most reliable and objective enforcement tool available. APHIS used the thermograph during the late 1970s, but apparently discontinued its use in about 1981. Since then, improvements in thermographic technology have produced more portable equipment, as well as equipment that can better record examination results on videotape or computer disc, thereby helping to preserve the results for evidence. Because the physical signs of soring today are often absent or disguised, thermographic measurement of the heat and inflammation indicative of injury in underlying tissues is a vital enforcement tool that must be restored to the Horse Protection Act program.

When the Horse Protection Act was amended in 1976, Congress reaffirmed its commitment to end soring. The outcome of AHPA's litigation should help achieve that goal by eliminating many devices and techniques that will, of themselves, cause a horse to become sore, or which can be used to accomplish soring. But the rulemaking required by the decision cannot be an adequate substitute for a more comprehensive enforcement program that is as sophisticated in its examination and detection methods as soring techniques have become. That program requires more funding than APHIS has received in the past, and the Association urges the Subcommittee to approve it.

## STATEMENT OF THE AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES

The American Institute of Biological Sciences (AIBS) is a federation of 40 professional societies and research laboratories representing over 70,000 individual life scientists. We are committed to seeing that adequate federal support is afforded to agricultural research and education programs. We are particularly concerned about funding levels for programs of the Cooperative State Research Service (CSRS), the federal component of the Federal-State agricultural research partnership. The CSRS administers federal funds for research at the state experiment stations and other eligible institutions across the country. We appreciate the opportunity to submit for the record our views on this matter.

For the past several years, this Institute has consistently expressed its concern about adequate funding for the Competitive Research Grants Program. The Competitive Grants Program supports basic research in areas at the frontiers of science. This year, although the Administration's budget contains a modest increase overall (+$12.1 million), we feel that additional funds should be afforded for several of the components. For Plant Science, the Administration has requested $12.1 million, an increase of $3.4 million. While this figure represents a slight increase over the FY 88 level, we feel that an additional $4.4 million is needed to support USDA's contribution to this important program which would bring the appropriation level to $16.5 million.. For Science and Technology Centers, we support the request for a separate and additional appropriation. The Plant Science Centers program initiated last year in conjunction with the National Science Foundation and the Department of Energy support important new research in plant biotechnology, plant root bacteria, and microbial ecology. However, instead of $3.4 million we urge a more complete figure of $3.5 million.

The Administration has proposed $21.6 million for Biotechnology. Given the increasing importance of this area of research in our country and the world, we feel that an increase is not only justified, but absolutely crucial, if our researchers are to retain their place at the forefront of this discipline. We therefore urge you to afford $25 million for Biotechnology Competitive Grants. For Animal Science, the Administration proposes $7 million. We feel that $10 million is needed if the department is to continue to support advances in understanding of the basic areas of animal science, as is needed for gains in production efficiency and other applications.

We also recommend a $1 million increase in the proposed request for Human Nutrition grants proposed at $3 million which would bring it up to $4 million. We would like to see funding continued ($2.9 million) for Pest Science which is proposed for elimination in FY 89. In addition, the Administration has proposed a new funding within competitive grants for Stratospheric Ozone. We strongly endorsed this needed new proposal of $7.4 million to support studies and understanding on the changes and depletion of the stratospheric ozone layer.

Together, these recommendations total $69.3 million, which we feel is the appropriate funding level for the Competitive Research Grants Program as a whole. We feel that this amount is necessary in order to support continued advances in areas which are of critical importance to the future of agriculture, and in turn, to enhanced competitiveness of our nation on the world market.

We are distressed that the Administration has once again proposed severe cuts in the National Research Grants Program. These Special

Research grants are targeted to specific problem areas. We urge you to re-insert funding for this important program as Congress has done in years past. We are particularly concerned about continued funding for the Animal Health (Sec. 1414.c.1) grants. Losses to the animal-production industry due to animal pests and diseases now amount to about $14 billion per year. These losses are passed on to the Nation's consumers. Intensified research efforts are necessary if this figure is to be reduced, and if lower-cost animal products are to be made available to consumers. This program seeks to achieve that goal by applying recent advances in the biological and medical sciences to veterinary problems. We urge you to insert $6.6 million for Animal Health special research grants. This figure, a $900,000 increase over the FY 88 appropriation, will support continued research efforts which promise breakthroughs in the diagnosis, prevention and control of food-animal pests and diseases.

We are also concerned about support for Aquaculture grants within the Special Research Grants Program. Aquaculture has the potential to make a substantial contribution to world nutrition. The limitations to intensified production of aquaculture species are water quality improvement, parasite control, dietary requirements, and the need for improved genetic stocks. We urge you to at least continue the current level of $660,000. This is the minimum necessary to support efforts to improve the technical base needed by the industry, in order to achieve increased production, and to reduce our dependency on imported edible seafoods. Catfish farmers deserve the same hi-tech research results that are afforded to livestock and grain farmers.

In addition, we are very concerned about the proposed elimination of Tropical and Subtropical grants also within the Special Research Grants Program. Tropical forests and their species are rapidly disappearing and it is essential to continue research so this knowledge is not lost forever. We urge you to continue this funding at least its current FY 1988 estimate of 3.09 million.

Similar to last year, we wish to express our support for a new national research program in the area of Water Quality Management. Consistent with the recommendations made last year by the Experiment Station Committee on Organization and Policy and the National Association of State Universities and Land-Grant Colleges' Division of Agriculture ("ESCOP recommendations"), we urge you to afford $25 million to support research needed to help alleviate the contamination of surface and groundwater, and to develop integrated systems for managing and conserving water. We heartily support research initiatives in this area, especially those which will focus on persistence, transformation, and degradation of chemicals in the soil and water system. We feel that support for this area of research is of the highest national priority, and urge you to afford it adequate funds.

Finally, let us turn to education specifically the Competitive Graduate Training Grants. We urge you to continue providing funds for these fellowships which are targeted to specific areas of agriculture. We feel that funding for these fellowships is absolutely essential if this Nation is to retain its position of prominence in agricultural advances and applications.

In general, let us stress that AIBS supports, as we have in the past, the fine work of the Cooperative State Research Service, CSRS. While many advances have been made directly as the result of sound federal support for agriculture research and higher education, much more needs to be done. AIBS believes that the funding increases we have outlined are legitimate, justified, and worthy of your active support. We urge you to do all that is within your power to see that funding consistent with these recommendations is made law.

Please feel free to call upon this Institute if we can provide you with more specific details on this matter of national importance.

Summary of our Request for programs of the Cooperative State Research Service, (CSRS) of the U.S. Dept of Agriculture

Competitive Research Grants (PL 89-106):

Afford $69.3 million--$14.8 million over the Administration's plan, including--

| | |
|---|---|
| Plant Science | $16.5 m |
| Sci & Tech Centers | $3.5 m |
| Animal Science | $10.0 m |
| Biotechnology | $25.0 m |
| Human Nutrition | $4.0 m |
| Pest Science | $2.9 m |
| Stratospheric Ozone | $7.4 m |

Special Research Grants (PL 89-106)
Re-insert funding for continuing National Research Programs, especially:

| | |
|---|---|
| Animal Health (Sec. 1414.c.1) | $6.6 m |
| Aquaculture | $0.66m |
| Tropical and Subtropical research | $3.9 m |

Insert $25 m for new National Research Program in Water Quality and Mgmt.

Higher Education

Continued and expanded funding for the Competitive Graduate Training Grants program.

# LETTER FROM JACK M. HOWELL, ASSOCIATE EXECUTIVE DIRECTOR, THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

The Honorable Quentin N. Burdick
Chairman
Subcommittee on Agriculture, Rural
 Development and Related Agencies
Committee on Appropriations
140 Dirksen Senate Office Building
Washington, D.C. 20510

April 27, 1988

Dear Mr. Chairman:

The American Society of Mechanical Engineers (ASME) is pleased to submit the enclosed proposal for a technical economics program to evaluate alternative technology-driven strategies for domestic rural development. We request that this proposal be included in the record of public hearings held by the Subcommittee on Agriculture, Rural Development and Related Agencies on appropriations for programs under its jurisdiction for Fiscal Year 1989.

The proposed project would develop a database and input-output model to assess the implications of changes and choices in technology, national and state policies and other key factors on U.S. rural economic development. We believe the proposed system will greatly aid the federal government, state and local governments and private sector investors in the evaluation of alternative technologies and policies to enhance rural development.

ASME is a nonprofit technical and educational organization with 118,000 members. Volunteer work provides the bedrock of our organization. In fact, the most costly part of our proposal--the database creation--would be largely performed by volunteer members of ASME and the American Society of Agricultural Engineers. This will greatly reduce the overall direct costs of the project. In addition, ASME has already established cooperative efforts that can be utilized in this project with the Institute of Economic Analysis, the Georgia Institute of Technology and Battelle Memorial Institute.

Thank you for your consideration. Please let us know if you have any questions.

Sincerely,

Jack M. Howell
Associate Executive Director,
Programs

## Proposal for
## A Rural Development
## Technical Economics Program

Objective:

The purpose of the program is to develop a factual database and input-output model for the assessment of alternative technology-driven strategies for domestic rural development.

Program Overview:

The proposed database will have sufficient subsectorial information. The input-output model will have a "zooming" capability to permit the methodical evaluation of economic consequences for different combinations of natural resources, technologies, transportation modes, energy utilization and other factors of interest.

**Program Development**:

Work on database and input-output modeling are ongoing under the ASME Technical Economics Program with the participation of the Georgia Institute of Technology, the Institute for Economic Analysis at New York University, the Battelle Memorial Institute and the ASME Small business Initiative. ASME would use and add to the expertise residing with these and other organizations in this program.

An 18 month proof-of-concept phase will produce a model/database demonstration and will provide an opportunity for critical review and (re)direction of the effort. During a second 18 month period the goal will be the creation of a largely self-supporting decision tool for government and the private sector.

**Development Cost**:

An important feature of the proposal is that the most costly part of the work--the database creation--will be largely performed by volunteer members of ASME and the American Society of Agricultural Engineers. This will greatly reduce the overall direct program cost. The net funding requested from the federal government is $548,000 over three years. The appropriations requested over the three year period will be used as follows:

| | Year 1 | Year 2 | Year 3 | Total |
|---|---|---|---|---|
| Salaries/fringes | $62,000 | $65,000 | $69,000 | $196,000 |
| Other expenses (subcontracts, computer usage, etc.) | 60,000 | 75,000 | 60,000 | 195,000 |
| Overhead (40%) | 49,000 | 56,000 | 52,000 | 157,000 |
| Total | $171,000 | $196,000 | $181,000 | $548,000 |

The American Society of Mechanical Engineers (ASME) proposes to develop a database and technical-economic model for the quantitative assessment of economic implications of changes and choices in technology, demand patterns, import/export levels and national policies on U.S. rural development. The economic model to be developed under this program will focus on rural development but will include its inter-relations with all other sectors of the U.S. economy. The database will contain sufficient amount of defined information to permit the detailed examination of sub-areas of specific interest. Together, the model and the database can serve as a powerful tool to investigate the comparative economic effects due to anticipated changes and/or alternative choices. A development effort of 36 months is anticipated. Simulation/demonstration with an interim breadboard model will be made at the end of 18 months.

Rural economics depends on many interrelated factors in national and international policies, demand trends, demographics, technology, and natural resources. One of the areas that will be examined closely in the proposed modeling and database effort will be the effects of the technological changes and the utilization of new technological breakthroughs. Changes in technology are not only driven by foreign competition, but can also be stimulated by the availability of new materials, new production techniques, alternative energy sources, as well as cost and awareness of a need. Adoption of new technology has been traditionally slow and uneven; however, with the increasing pace of R&D and competition, greater attention to this must now be given.

The proposed system, as envisioned, will contribute directly to (1) improving the technical economic decision process; (2) evaluating the comparative value of alternative technologies and policy decisions to the rural economy as a whole; (3) evaluating the implications to rural development and (4) demonstrating the feasibility of a sufficiently standardized methodolgy that even small businesses and agencies will find usable and affordable for assessing alternative technologies, policy approaches and demand trends.

Under its Technical Economics Program, ASME has worked on the several aspects and approaches that are required in the proposed study with the participation of the Georgia Institute of Technolgy, the Institute for Economic Analysis at New York University, the Battelle Memorial Institute and the ASME Small Business Initiative. For this proposed study, ASME is also anticipating the participation and cooperation of the American Society of Agricultural Engineers (ASAE).

Good decision-making must consider an array of socioeconomic and technical factors, and must be based on hard evidence. We believe that the ASME Technical Economics Program together with the participating organizations will provide the necessary knowledge. The combined expertise in methodology, technology, world economics and systems management will be fully utilized. Relevant inputs from other interested groups and organizations will be actively solicited.

The input-output approach for economic analysis is chosen for this program, because of its capacity for the methodical evaluation of detailed capital, material and labor requirements for new technologies or processes. It also provides for the systematic treatment of the entire economy in terms of the interdependency among its various sectors. The institute for Economic Analysis is developing a refined dynamic input-output technical economic model with support from the National Science Foundation. Battelle Memorial Institute is in procession of an interim model, and is adapting it for regional and sectoral studies. These compatible models will all be utilized for the proposed study at its several different stages.

The necessary technological coefficients will be developed from data provided initially by volunteer committees selected from a wide spectrum of technology, production and product development enterprises within the thirty-five ASME Technical Divisions and the ten ASAE Regions. The contributions of these volunteer organizations in terms of time and information will save a significant financial expense and, at the same time, create a cadre of specialists who will use, maintain, improve and continue the model. The participation of other interested societies, associations and agencies will be added.

Data management and database structure, for ease of access and use of the model, will be an important consideration in the software development. The ASME Database Committee, under the Chairmanship of Dr. R.E. Fulton, from Georgia Tech, will be part of the volunteer resource base.

To mobilize the volunteers, create a cadre of users, and provide expert advice to the researchers, a nationally recognized steering committee will be established. The Steering Committee will have broad experience with high level technical and economic decision-making, familiarity with the role of emerging technologies, and will represent in-depth economic, engineering, rural development and agricultural expertise.

Several factors argue positively for the timing and potential success of this effort: (1) this nation has gained a great deal of practical experience with large and complex systems; this experience in systems analysis, systems engineering, systems management and oversight is directly useful in developing a technical economic analysis model; (2) there are high-speed, large-scale computers readily available to expeditiously process the data; (3) there exits an available core of interested persons with distinguished accomplishments in the fields of engineering, rural economics and agriculture, and they have the support of the volunteer structure of ASME and ASAE; and (4) the economic pressures of worldwide competition and the contribution of rural America.

During the development of the refined rural development model, an interim breadboard model will be assembled and used for simulation and demonstration of the principles and applications. This effort is planned to be completed by the eighteenth month from go-ahead. Experience and observations gained from the breadboard model will be factored into the final development.

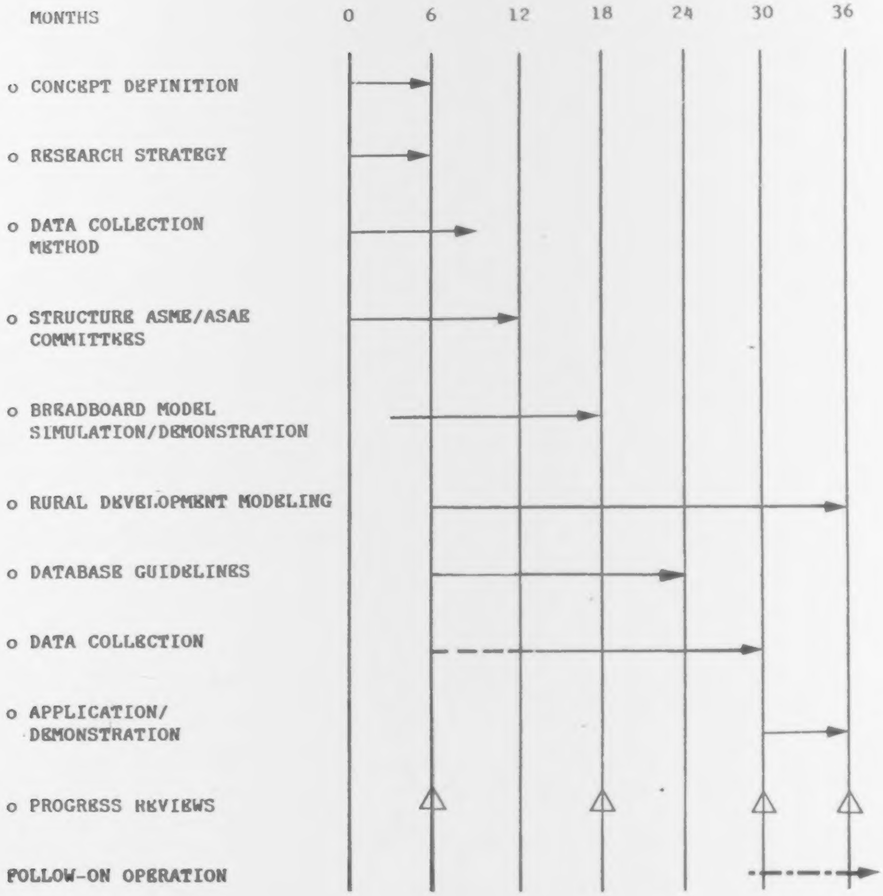
## DEVELOPMENT COST

An important feature of the proposed ASME Rural Development Technical Economics Program is that the most intensive part of the work - the creation of the Technical-Economic Database - will be performed by ASME and ASAE volunteers with the cooperation/encouragement of their employers. This greatly reduces the program cost, making the undertaking financially feasible. The net funding needed from the federal government is $548,000. The appropriations requested over the three year period will be used as follows:

| | Year 1 | Year 2 | Year 3 | Total |
|---|---|---|---|---|
| Salaries, fringes | $ 62,000 | $ 65,000 | $ 69,000 | $196,000 |
| Other expenses (subcontracts, computer usage, etc.) | 60,000 | 75,000 | 60,000 | 195,000 |
| Overhead (40%) | 49,000 | 56,000 | 52,000 | 157,000 |
| Total | $171,000 | $196,000 | $181,000 | $548,000 |

A Rural Development
Technical Economics Program

Flow Chart



ASME CENTER FOR TECHNICAL ECONOMIC ANALYSIS

## LETTERS FROM FRED H. HOLT, PRESIDENT, AND JOHN W. THOMAS, SENIOR COUNSEL, ANIMAL HEALTH INSTITUTE

April 19, 1988

The Honorable Quentin N. Burdick, Chairman
Subcommittee on Agriculture and Related Agencies
Senate Committee on Appropriations
Washington, DC 20510

Re: Funding for the Veterinary Biologics Program of USDA's Animal and Plant Health Inspection Service

Dear Mr. Chairman:

The Animal Health Institute (AHI) is the industry trade association whose member firms develop, manufacture, and distribute most of the animal health and nutrition products marketed in the United States. These products include animal drugs regulated by the Food and Drug Administration (FDA), and animal biological products (vaccines and related items) regulated by USDA's Animal and Plant Health Inspection Service (APHIS).

We request that this statement be included in the record of the Committee's hearing on appropriations for USDA for fiscal year 1989. Thank you.

Our interest is APHIS's program for the regulation of veterinary biological products. It appears to us that the administration has proposed a strong program to assure that APHIS is able to carry out its responsibilities in a timely and effective manner. We particularly want to support the administration's plans for the new line item for (1) biotechnology-related activities and (2) authority for added staff at the National Veterinary Services Laboratory (NVSL) in Ames, Iowa. The remainder of this letter will serve to explain why these initiatives deserve congressional support.

Under the authority of the Virus-Serum-Toxin (VST) Act, APHIS's veterinary biologics program includes the testing and licensing of all biological products for animals used in the United States. These products are essential to the health and well-being of our vast herds and flocks of food-producing animals and poultry, as well as the protection of companion animals and other non-food species.

As you know, the 1985 Farm Bill contained amendments to the VST Act so that unlicensed "intrastate" animal biologics -- those that were not transported across a state line -- would come under the Act's testing and licensing program. A four-year phase-in period was provided to minimize the burden imposed on the "intrastate" industry, and that phase-in period will end on New Year's Day in 1990, just three months after the end of fiscal 1989.

Nearly 60 previously unlicensed companies have filed with the agency for the approval to market over 2,000 products. Needless to say, the agency has needed additional personnel to handle these added companies and products. APHIS is beginning to increase its manpower in response. Unless adequate resources are provided for the coming fiscal year, we anticipate that these personnel will find themselves overwhelmed by the task of licensing the hundreds of animal biological products before they become contraband at the beginning of 1990.

As is the case with many breakthrough human-use drugs and biologics, many of the animal biologics that are now entering the APHIS testing and licensing process have been developed utilizing the techniques of biotechnology. The vast potential of the biotechnological processes is just beginning to be recognized. But in order to achieve those benefits, new types of expertise are required, not only for the laboratory innovators, but also for those who bear the responsibility for testing the new products to make certain they are safe and effective.

The agency's proposal for an increase in the line item related specifically to biotechnology issues will be important for the veterinary biologics program. Approximately $750,000 of the funds in this line are slotted for the biologics review program.

APHIS has the potential of improving the well-being of domestic animals in this country in many ways, if adequate resources are available. For instance, three years ago, employees at the agency's National Veterinary Services Laboratory (NVSL) in Ames, Iowa, began working with AHI member companies on product tests that would reduce or eliminate the use of live animals to check the quality of some products. NVSL participation is essential in such a project to develop standard test materials that can be used with several companies' products, but the laboratory has not had sufficient resources to devote much effort to this recently.

The "resource" problem with NVSL relates to the number of personnel as much as it does to money. The agency needs to have adequate salaries and benefits in order to attract and retain the very highly skilled scientists that are needed for the review of these new products. The competition is fierce for these talented individuals, and we are not certain that APHIS is able to compete effectively.

Whether the subject is recombinant DNA technology, in vitro testing, or new knowledge in the field of immunology, APHIS needs top-flight scientists at its facilities for the regulation of veterinary biologics. We support the administration's plans for the veterinary biologics program. We recommend that Congress support these plans, in order to assure a continued supply of pure, safe, potent, and effective biological products for livestock and poultry producers, as well as the pet owners of this country.

We would be pleased to respond to any questions, or to provide you with any other assistance you deem appropriate.

Very truly yours,

Fred H. Holt/ddk

Fred H. Holt
President

John W. Thomas
Senior Counsel

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The Honorable Quentin N. Burdick, Chairman
Subcommittee on Agriculture and Related Agencies
Senate Committee on Appropriations
Washington, D.C. 20510

Re: Funding for FDA's Center for Veterinary Medicine

Dear Mr. Chairman:

The Animal Health Institute (AHI) is the industry trade association whose member firms develop, manufacture and distribute most of the animal health and nutrition products marketed in the United States. These products include animal drugs, vaccines and related items that are used in food-producing animals and pets, and many of them are regulated by the Food and Drug Administration's Center for Veterinary Medicine (CVM).

We request that this letter be included in the record of the hearing on appropriations for the Food and Drug Administration for fiscal year 1989. Thank you.

Summary of Recommendation

AHI is concerned that sufficient resources have not been allocated to CVM for some time. There has been a decline of nearly 30 percent in the number of scientists devoted to review of new animal drug applications (NADAs) between 1980 and 1987 (with another seven-person cut mandated for fiscal 1988), but the number of applications the agency is expected to review (NADAs and investigational applications) has increased over 12 percent during the same period.

The agency desperately needs an infusion of additional scientific expertise, and AHI strongly recommends that the Congress authorize an additional 45 positions for the Center in fiscal 1989, and the funds to support them, approximately $4.5 million. While this would provide a substantial increase in the Center's headquarters staff in Rockville, Maryland, without such additional scientists, CVM will have neither the number of people nor the scientific skills to efficiently review applications for new animal drugs.

Background Information

As you know, each innovative animal drug product must undergo stringent animal safety and efficacy reviews before the agency can approve its marketing. Drugs intended for use in food animals are subjected to additional safety reviews to make certain that hazardous residues will not remain in the edible products of the treated animals.

Advances in medical science are having just as great an impact on the Center for Veterinary Medicine as on the Center for Drug Evaluation and Research. While the number of NADAs under review has grown only modestly in recent years, the complexity of these applications has increased significantly. Whether the subject is chemistry or recombinant DNA techniques, the products now being developed require greater skills and enhanced expertise on the part of CVM's scientists and regulatory personnel.

Future pharmaceutical developments will more frequently involve recombinant DNA applications and other new technologies such as fermentation advances and innovative delivery systems. Drug sponsors, livestock producers, veterinarians, and the American public need to have a CVM staff that is capable of understanding and accurately assessing proposed uses of biotechnology in animal drugs promptly and efficiently.

We are also concerned about the impact on foreign trade and foreign competition of our regulatory system. We must have knowledgeable regulators -- who do not over- or underestimate risks from the new technologies -- in order to operate efficiently in this country. If our regulators are not exceptionally competent, U.S. firms will be discouraged from pursuing development and production in this country, or we may have to abandon some classes of products to our competitors abroad.

Like any agency that must work at the cutting edge of science, the Center for Veterinary Medicine must strive constantly to recruit and retain expert personnel. In order to attract top quality scientists, and to retain them and keep their skills current, the agency needs to provide opportunities for professional enrichment -- through continuing education, sabbaticals, and research opportunities. Adequate staffing would allow time for such activities; at present, CVM's professional resources are so stretched that such opportunities are virtually nonexistent.

AHI understands that FDA policy endeavors to provide scientists with significant work time devoted to professional education and other career enhancement, so that they may stay abreast of current knowledge in their fields of expertise. The cutbacks in the Center for Veterinary Medicine have virtually eliminated this time for continuing education.

Another area of need is CVM's headquarters laboratory facilities, located at Beltsville, Maryland. These facilities cannot measure up to FDA's own Good Laboratory Practice (GLP) standards, nor to the requirements of the Animal Welfare Act. For these reasons, CVM is precluded from using its own laboratories for animal experiments.

## Summary

AHI's member companies know from direct experience that the Center for Veterinary Medicine is staffed by skilled scientists. Our concerns are that there are not enough of these competent individuals in the agency and that the Center will lose the best and the brightest because of unfavorable working conditions.

We have every confidence that such problems can be avoided with prompt and decisive action by Congress. As noted above, a start can be made in the fiscal 1989 appropriation bill by providing an additional 45 scientists and support specifically for CVM, at a cost of about $4.5 million.

Thank you for any support you can give our recommendations. We would be happy to respond to any questions you may have.

Sincerely,

Fred H. Holt/ddk
Fred H. Holt
President

John W. Thomas
Senior Counsel

## STATEMENT OF DR. CHARLES A. WALKER, CHANCELLOR, UNIVERSITY OF ARKANSAS AT PINE BLUFF

Mr. Chairman, I am Dr. Charles P. Walker, Chancellor of the University of Arkansas at Pine Bluff.

The University of Arkansas at Pine Bluff enjoys a past that is rich in tradition and anticipates a future that will equip students to meet the challenges of a technological era. Founded in 1873 as Brănch Normal College, the land-grant institution was known as Arkansas Agricultural, Mechanical and Normal College until 1972 when it became a part of the University of Arkansas system.

Our University is involved in teaching, research, and extension. We offer four degree programs in agriculture: agricultural economics, agronomy, fisheries biology and animal science. We also offer a B.S. in agriculture education in conjunction with the school of education.

I want to take this opportunity to again call your attention to the lack of funding support through USDA for higher education programs in agriculture and natural resources. It is clear that if our enrollments and student quality continue to decline, we will eventually face serious deficiencies in our human resource base.

Specifically, the National Association of State Universities and Land Grant Colleges (NASULGC) Division of Agriculture FY 1989 funding recommendations for higher education include:

* Competitive Graduate Training Grants (Fellowships)- $10.0 million

* Competitive Challenge Grants - $10.0 million

* Strengthening Grants for 1890 colleges - $2.0 million

The more than 150 U.S. colleges and universities which educate more than 80% of the future business leaders, scientists, producers, and natural resource managers for the U.S. food system are requesting a modest, but sorely needed Federal investment in agricultural science and business higher education programs.

We must act now to ensure that the human expertise needs are met if we are to maintain a viable and competitive U.S. agriculture system in the years ahead. It is sobering to reflect that the outstanding freshmen recruited for the fall of 1988 cannot typically be trained to complete the Ph.D. degree until the late 1990s. We must strengthen our system now if we are to meet our future needs for agiculture and natural resource scientists in our universities, government, and industry.

### PROJECTED RETURNS FROM APPROPRIATIONS - COMPETITIVE GRADUATE TRAINING GRANTS (FELLOWSHIPS)

The $10 million investment in this program will recruit and support 200 pre-doctoral fellows in high priority agricultural science and business disciplines. Doctoral fellowship awards will be for a three year period. Master's fellowship awards will support recipients for two years.

Colleges and universities with graduate degree programs in priority agricultural science and business disciplines will compete for grants. Colleges which are awarded grants will recruit students and administer programs.

A 1986 U.S. Department of Agriculture report projects nearly 14,000 annual openings for food and agricultural scientists, engineers, and related specialists through 1990. More than 40 percent of these positions will require individuals having graduate degrees. The Competitive Graduate Training Grants (Fellowships) Program will recruit distinctly outstanding students to help fulfill these needs.

**Some of the Selected Accomplishments made through the Strengthening Grant Program at UAPB:**

1. Activities of the Department of Agriculture were publicized so that recruitment efforts would be enhanced (leaflets, pamphlets, brochures).
2. A full-time recruitment and retention officer was employed.
3. An audio-tutorial resource laboratory was developed to improve performance of students who were weak in certain areas of science and agriculture.
4. A learning laboratory utilizing modern techniques (computers, audio-visual equipment, etc.) was developed for students.
5. Faculty and student workshops were sponsored on student retention, academic skills, apparel design, and interior design.
6. Much needed reference books and scientific journals were purchased for research scientists.

COMPETITIVE CHALLENGE GRANTS. The $10 million investment in this program will catalyze innovation and revitalization of undergraduate and graduate education programs in agricultural science and business disciplines. Priority areas requiring immediate attention are agribusiness education, undergraduate research activities, curricula revitalization, instructional instrumentation, student recruitment, and faculty development.

Individuals will compete for grants to upgrade educational programs. All Federal grants awarded in the Competitive Challenge Grants Program will require the recipient to match the award with funds from local and private sources. Therefore, a $10 million Federal investment will generate more than $20 million for revitalization and improvement of agricultural science and business higher education programs.

STRENGTHENING GRANTS FOR 1890 COLLEGES. Colleges established by the Second Morrill Act of 1890 are providing essential expertise to the Nation's food system. These colleges have unique and special needs to fulfill their educational missions especially in serving minority students.

The Administrators at the University of Arkansas at Pine Bluff feel that the 2.0 million dollars requested by NASULGC Division of Agriculture FY 1989 Budget Committee for strengthening grants for 1890 colleges is too small. We feel that because of neglect and under-funding, that amount should be increased to 6.0 million in order for each of the 1890 Land-Grant institutions to receive at least $300,000 to strengthen their institutions.

A $6 million investment will help 1890 colleges address critical priorities including faculty recruitment and retention, upgrading instructional equipment, and strengthening libraries.

## Why is a Federal Investment Needed?

An efficient food system is strategically important to our Nation's wealth and survival. No nation has maintained a position of world leadership without an efficient and competitive agriculture.

The requisite human resources to manage and improve the U.S. food system in future years are not being produced. A 1986 U.S. Department of Agriculture report, "Employment Opportunities For College Graduates in the Food and Agricultural Sciences", projects a 17 percent average annual shortfall of qualified food and agricultural scientists and a 16 percent shortage of agribusiness marketing and financial specialists through 1990.

A more efficient and competitive U.S. agricultural and natural resource system will require high quality human resources. Agriculture is not attracting enough of the brightest undergraduate and graduate students. Moreover, agriculture's ability to attract such students will probably not improve without incentives and initiatives backed by sufficient funds. This conclusion is presented in a 1988 National Research Council report entitled, "Educating the Next Generation of Agricultural Scientists".

U.S. colleges of agriculture and natural resources have redirected rapidly shrinking resources to priority programs and have quadrupled student scholarship support since 1980. However, these efforts have not been sufficient to sustain the production of the Nation's requisite agricultural science and business human resources. During the past decade, undergraduate student enrollment in U.S. colleges of agriculture and natural resources has declined by 38 percent from 91,774 to 57,110.

Clearly, there are not enough students enrolled to meet the forthcoming agricultural business and science needs. Graduate degree programs in the food and agricultural sciences are quite vulnerable and very seriously threatened by the plummeting undergraduate enrollments. It is evident that the agricultural and natural resource colleges need additional support at the Federal level to produce requisite human resources.

Positive and consistent signals must be provided to students and faculty. Individuals want to be successful and be involved in professions which are important to the national agenda. Mixed Federal signals have seriously undermined the development of priority human resources in agricultural science and business disciplines.

In 1984, the U.S. Congress established the Competitive Graduate Training Grants (Fellowship) Program to help recruit excellent students to priority agricultural science and business graduate degree programs. The program has been extraordinarily successful in attracting students of top ten percent quality. However, the lead Federal agency for higher education programs in agriculture -- the U.S. Department of Agriculture -- has requested that Congress kill this program in each of its executive budget requests of FY 1985-89.

As indicated, the U.S. Department of Agriculture has projected significant shortages of qualified food and agricultural scientists and business representatives through 1990. However, during the past five years, it has asked Congress to eliminate 80 percent of all Federal appropriations for agricultural higher education programs which produce the vast majority of needed scientists and agricultural business leaders.

The U.S. Joint Council on the Food and Agricultural Sciences was established by the U.S. Congress to advise the Secretary of Agriculture regarding national science and education priorities.

For FY 1989, the Council listed the development of scientific knowledge and expertise as the third-highest priority of the eight presented to the Secretary of Agriculture. The Council stated:

The continuing development of human capital is critical to the continued success of the Nation's food and agricultural system. Expertise in the agricultural and complementary sciences is of paramount importance if the United States is to regain leadership and a competitive edge in the world economy. To meet this challenge, greater efforts are needed to attract and retain quality students in the food and agricultural sciences, curriculums and faculty need to be improved, and better information and dissemination on career opportunities is urgently needed.

Mr. Chairman, thank you very much for allowing me to submit this testimony.

## STATEMENT OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AGC is:

- More than 32,500 firms including 8,000 of America's leading general contracting firms responsible for the employment of 3,500,000-plus employees;
- 104 chapters nationwide;
- More than 80% of America's contract construction of commercial buildings, highways, industrial and municipal-utilities facilities.

The Associated General Contractors of America represents more than 32,500 firms including 8,000 of America's leading construction companies. These general contractors employ more than 3,500,000 workers, and perform more than 80% of America's contract construction of commercial buildings, highways, industrial and municipal-utilities facilities.

AGC supports appropriations for the Soil Conservation Service (SCS) at levels which are adequate to fund the major construction programs within the SCS. Appropriations for the SCS should be, at the very minimum, at the levels made in years prior to fiscal 1987.

SCS is one of the major services within the United States Department of Agriculture. Established by an act of Congress in 1935, the SCS has responsibility for developing and carrying out a national soil and water conservation program in cooperation with groups including landowners, operators and other land users/developers, community planning agencies and regional resource groups, and other agencies of government - federal, state and local. The SCS also assists in agricultural pollution control, environmental improvement and rural community development.

The soil and water conservation program is carried on through technical help to locally organized and operated conservation districts, local sponsors of watershed protection projects and resource conservation and development projects, and consultive assistance to other individuals and groups. SCS also carries on its programs through direct award of contracts for construction of small watershed projects.

Congress recognizes the importance of SCS and the value of its accomplishments in the area of soil and water management. Although it was virtually directed at the Civil Works Program of the U.S. Army Corps of Engineers, the Water Resources Development Act of 1986, P.L. 99-662, included several provisions which apply to SCS. These provisions recognize and address the additional benefits that SCS projects provide to taxpayers. The inclusion of these provisions reveals that Congress acknowledges that SCS has an important function in the water resources program.

The Administration recognizes the importance of the funding for the SCS construction programs as well. The Administration, however, is not as fully convinced as Congress about the large commitment that is needed for the SCS construction programs.

The Administration's budget request for fiscal 1989 for the Soil Conservation Service indicates the low priority that, at the present time, the Administration places on structural solutions to soil conservation. While the Administration has in the past attempted to greatly scale back funding for the SCS to much lower levels than that proposed, the current budget request reflects, at least, an Administration accommodation with the fact that the SCS construction program must continue.

Adequate funding for the SCS construction programs is critical. Over the past several years, however, the amounts provided for the construction programs of SCS have been dwindling. For example, the appropriation for the Watershed and Flood Prevention Operations Program of SCS was approximately $230 million in fiscal 1986. In fiscal 1987, the appropriation for this account was approximately $166 million; in fiscal 1988, it was $187 million. Examples of dwindling appropriations for other SCS construction programs including the Resource Conservation and Development Program and the Great Plains Conservation Program could be given. Suffice it to state that the levels for all SCS construction programs were at the bare minimum for fiscal 1987 and 1988.

AGC believes that the Watershed and Flood Prevention Operations Program should be appropriated at least $200 million in fiscal 1989 in order to avoid any disruptions in the completion of the construction projects within its program. The Resource Conservation and Development Program should be provided between $35 and $40 million in fiscal 1989. The Great Plains Conservation Program should be appropriated at least $25 million in order to accomplish the task set forth in the Soil Conservation and Domestic Allotment Act.

Appropriations for the Watershed Planning and the River Basin Surveys and Investigations Accounts must be provided at adequate levels to ensure that the entire SCS program can be continued into the future.

AGC urges Congress to increase funding for the construction programs of the Soil Conservation Service.

## STATEMENT OF JACK A. BARNETT, EXECUTIVE DIRECTOR, COLORADO RIVER BASIN SALINITY CONTROL FORUM

Requesting additional funds over and above the President's 1989 budget request for the Colorado River Basin Salinity Control Program.

Including:

1. $5,000,000 for cost-sharing onfarm salinity control
2. $3,000,000 for SCS and other technical assistance

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In fiscal year 1988 the Congress provided $4.9 million for work associated with the recently enacted Colorado River Basin agriculture salinity control program. From Agricultural Conservation Program appropriations which the Congress had designated for salinity expenditure in past years, about $2.5 million was available in carry-over funds. Thus, about $7.5 million has been available for the program in the current fiscal year.

As this most cost-effective water quality program is in its early years of implementation, we believe that the approximate $0.5 million dollar increase is justified. There is a strong interest and active participation by farmers in the two areas where the program was initiated. A stronger commitment by farmers to implement salinity control contracts in the future is demonstrated by the large number of pending applications for participation. Also, the Department of Agriculture is proceeding with actions which will implement the Colorado River Basin Salinity Control Program in two additional geographic areas.

### RECENT BACKGROUND
### DETAILED FUND ALLOCATION

To date, the onfarm salinity control program is fully operational in only two geographic areas: the Uinta Basin of Utah and the Grand Valley of Colorado. Last year the Department of Agriculture adopted the rules and regulations necessary for expenditure of the line-item appropriations provided by the Congress. Many contracts have been signed and many more contracts are being prepared. In the near term, we anticipate that all of the appropriated funds will be designated for contracts with the Colorado River Basin farmers.

Without congressional action to continue the line item, no additional funds would be available for cost-sharing in FY 89. The $8 million level of appropriation requested would allow for the continuation of the program in the Uinta Basin and the Grand Valley, and it would also allow for full implementation efforts to proceed in two additional areas: the Big Sandy area of Wyoming and the Lower Gunnison area of Colorado.

Looking further ahead, additional areas of Utah, Colorado, and Nevada have been identified as having very cost-effective salinity control onfarm program potential and are within the selected plan. These much-needed water quality programs could not move ahead unless the Federal Government, the Basin states, and the local farmers are in a position to financially participate in this cooperative program. The Basin states and the local farmers are ready to proceed with this partnership and pay at least 51 percent of the cost of this construction program.

## JUSTIFICATION

The water of the Colorado River system serves some 18 million people and irrigates approximately 1.6 million acres of land in parts of the seven Colorado River Basin states. The river also provides domestic and irrigation water to Mexico. Salinity has long been recognized as one of the major problems in the river. Water users in the lower reaches of the river system have suffered significant adverse impacts due to the river's salinity. These impacts have been estimated to have reached over $200 million a year. Without salinity control measures and with increased demands for Colorado River water in the Basin, the river's salinity is projected to increase, further impairing the usefulness of this water supply. The economic damages suffered by the water users could double by the turn of the century.

The Basin states' concern with the river's increasing salinity led them to create the Colorado River Basin Salinity Control Forum in 1973. The Forum (whose members are appointed by the governors of the respective states) developed a salinity control policy that stated that while the Basin states continue to develop their compact-apportioned waters, salinity concentrations must be maintained at or below those levels found in the lower river in 1972. This salinity control objective is the Basin states' adopted-EPA approved water quality standard for the Colorado River. The standard was adopted pursuant to the Clean Water Act. The policy forms the basis for the cooperative federal/state, Basin-wide salinity control plan. The Forum has a continuing responsibility to see that a salinity control plan is implemented to meet the policy objectives.

After discussions involving the Federal Government, the Republic of Mexico, and the seven Colorado River Basin States, the Congress enacted in 1974 the Forum-sponsored Colorado River Basin Salinity Control Act (P.L. 93-320). Title I of the Act established a program to reduce the salt concentrations below Imperial Dam (the last diversion point on the Colorado River in the United States), so that the United States could honor its 1973 agreement on Colorado River salinity with Mexico. Title I was identified by Congress as a federal commitment. The Act established a program, Title II, which allowed the States and the Federal Government to work together to prevent salinity increases in the Colorado River above Imperial Dam, benefitting users in the United States as well as Mexico. The 1974 Act also created a Colorado River Basin Salinity Control Advisory Council, composed of gubernatorial representatives of the Basin states to advise the Secretaries of the Interior and Agriculture and the Administrator of the Environmental Protection Agency as to needed annual adjustments to the salinity control effort.

In 1984 the Congress enacted much-needed amendments to the 1974 Act. In response to issues first raised by the Forum, the amendments resulted in Public Law 98-569, which authorized additional Department of the Interior and Department of Agriculture activities needed to meet the objectives of the 1974 Act. In recognition of the proven cost-effectiveness of Agriculture's onfarm management activities in controlling river salinity in the Basin, a separate Colorado River Basin onfarm management salinity control program was authorized for the Department of Agriculture.

Consistent with the newly enacted amendments and in working with Agriculture, the Advisory Council made specific recommendations in its 1987 Annual Report relative to FY 89 funding for the salinity control efforts. The recommended funding level is the minimum amount the Council found necessary to maintain salinity concentrations at or below the adopted salinity standards.

Despite the fact that the program has been authorized and funded by the Congress, the past several years (including this fiscal year) the President's proposed budget has called for zero funding for Agriculture's onfarm program. The President's proposal of no funding for 1989 seriously jeopardizes the continued progress and effectiveness of the Colorado River salinity control efforts. It significantly restricts the continued implementation of the Department of Agriculture's cost-effective onfarm salinity control measures, which were initiated in 1979. To maintain a realistic, efficient schedule, the budget for Agriculture's onfarm program and associated technical assistance needs to be increased to $8 million.

At a time when the nation faces significant financial difficulties, it is recognized that funds for every federal program must be reviewed. The Advisory Council's funding recommendations, however, are considered to be the minimum level of funding needed to assure that salinity control efforts move forward in a timely manner. The $8 million level represents a level of appropriation already reduced from previously established desired levels. Delays will result in greater salinity pollution of the Colorado River in the short term. In addition, catch-up funding attempts in future fiscal years will ultimately cost the Federal Government much more.

## STATEMENT OF M. RUPERT CUTLER, PRESIDENT, DEFENDERS OF WILDLIFE

Thank you, Mr. Chairman, for the opportunity to express the views of Defenders of Wildlife with respect to the Fiscal Year 1989 U.S. Department of Agriculture budget for the Animal and Plant Health Inspection Service's Animal Damage Control Program, the Extension Service and the Agricultural Research Service. I am Rupert Cutler, President of Defenders of Wildlife. As a former Assistant Secretary in the Department of Agriculture during the Carter Administration, I have a particular interest in USDA programs, particularly those involving management of natural resources. I request that my entire statement be incorporated in the record.

Defenders of Wildlife is a national, non-profit conservation organization representing more than 100,000 members and supporters. Our goal is the preservation and enhancement of the natural abundance and diversity of wildlife and the protection of wildlife ecosystems. Defenders supports the recovery of threatened and endangered species and the enhancement of our national wildlife refuge system. We also support and promote wildlife management philosophies and practices that benefit all wildlife.

I would like to extend our sincere thanks to the Chairman and members of this Subcommittee for their support of livestock guarding dog programs, conditioned taste aversion research, and the New England Cooperative Extension Service Vertebrate IPM Program in the FY88 Agriculture Appropriations Bill. Progress is underway with the appropriated monies; the benefits to agricultural producers are tangible.

### ANIMAL AND PLANT HEALTH INSPECTION SERVICE

### ANIMAL DAMAGE CONTROL PROGRAM -- OPERATIONAL BUDGET

TOTAL REQUEST - $295,000

**Livestock Guarding Dog Programs -- Western Region** $250,000

Defenders of Wildlife recommends that $250,000 be provided to the Animal and Plant Health Inspection Service/Animal Damage Control Program for FY89 livestock guarding dog programs in Oregon, Washington, Idaho, Wyoming, and Montana. These funds should be used to support an additional position to assist in administering the guard dog programs and to continue educational efforts aimed at maximizing the effectiveness of guarding dogs. Federal funds should not be used in the direct purchase of livestock guarding dogs.

In FY87, the Committee provided for an increase in Northwest guarding dog efforts by appropriating funds to expand the Oregon livestock guarding dog program to Washington. The Committee also directed APHIS to establish a new program in Idaho and Wyoming. These programs were allocated $155,000 in FY88 funds and are administered by Dr. Jeff Green of the U.S. Sheep Experiment Station in Dubois, Idaho. Guard dogs are being placed on ranches throughout the four states, and are providing substantial protection of livestock from predators.

Based on interest now being expressed by Montana livestock producers, Defenders recommends that the requested $250,000 in FY89 funds be used in part to expand the guarding dog program into this state. Based on Montana's location relative to the Dubois Sheep Experiment Station, this expansion should be relatively easy to accomplish.

**Livestock Guarding Dog Programs - Eastern Region** **$45,000**

Defenders recommends that $45,000 be earmarked for a livestock guarding dog program in the Eastern region of the Animal Damage Control (ADC) Program.

A Minnesota livestock guarding dog program was undertaken with $45,000 in FY86 ADC Program funds as a two-year research project to determine whether guarding dogs can protect Minnesota livestock, primarily cattle, from predation by the threatened Eastern timber wolf. In FY88, the program has continued but was changed at the conclusion of research to a program designed to educate Minnesota livestock producers, particularly those in wolf range, about guarding dogs and assist them in their use.

While the Minnesota program has continued, requests for guard dog information originating from producers in other Eastern states are being received by Eastern offices of the ADC Program. Based on these increasing requests, Defenders believes that there is justification for expanding the range of the program beyond Minnesota to encompass the Eastern region. This expansion should be achievable with level funding.

## ANIMAL DAMAGE CONTROL PROGRAM -- RESEARCH BUDGET

TOTAL REQUEST - $100.000

**Conditioned Taste Aversion Research** **$100,000**

Defenders recommends that $100.000 in FY89 Animal Damage Control Program research funds be provided for the continuation of conditioned taste aversion research administered by the Center for Environmental Studies at Arizona State University.

Conditioned taste aversion is a method of predator deterrence in which mutton baits are laced with an emetic, lithium chloride. Coyotes consuming the bait become ill and are thus conditioned to dislike the taste and smell of sheep. This technique is successfully used by livestock producers in the Canadian provinces of Saskatchewan and Manitoba. Canadian producers have found it to be both inexpensive and easy to use.

Taste aversion research has been underway with federal funds since FY85. The project is designed to provide information on the technique to interested livestock producers and instructions in its use. The results of the employment of taste aversion will be followed and evaluated by project researchers.

Education materials produced with federal funds are being widely distributed to livestock producers. More than 700 informational pamphlets have been provided in response to requests from across the country. A videotape has been produced and is available to producers interested in the technique.

FY89 funding will be directed toward continued educational efforts and analysis of predation levels in livestock operations where taste aversion is employed.

## EXTENSION SERVICE

TOTAL REQUEST - $6.256,000

**New England Vertebrate Damage Control Program** **$166,000**

Defenders recommends that $166,000 be provided to the Extension Service for the continuation of the New England Vertebrate Damage Control Program.

An increase in FY88 funding for the Extension Service provided for the hiring of a Vertebrate IPM Specialist to be based with the Cooperative Extension Service at the University of Massachusetts at Amherst. Congress directed that the specialist assist farmers throughout Massachusetts, Maine, New Hampshire and Vermont in using alternative, nonlethal wildlife damage control techniques.

Defenders strongly supports the continuation of this important new program. We recommend that the Specialist coordinate with Extension personnel in each state to pinpoint problem areas; the recommended funding includes support for the Cooperative Extension Services in Maine, New Hampshire and Vermont. Defenders is also recommending that an advisory committee, made up of state Extension officials, agricultural interests, and environmentalists be established in each state to assist in coordinating the regional program and providing guidance to the Specialist. The requested appropriation also includes funds for support of research and demonstration projects and incentive payments to assist farmers interested in utilizing alternative wildlife damage control techniques.

**Kansas Wildlife Damage Control Program** $90,000

Defenders of Wildlife recommends that $90,000 be provided to the Extension Service to expand the Kansas Cooperative Extension Service's Wildlife Damage Control Program to better assist residents of that state.
The Kansas Wildlife Damage Control Program has for many years assisted Kansas livestock producers by providing them with information and training on prevention of livestock losses to predators. This educational approach has been very successful; losses of Kansas livestock to predators have been reduced to very low levels by a program whose annual budget of approximately $60,000 is a fraction of that spent by the Animal Damage Control Program in other states.

As urbanization has increased in Kansas, and acres in agricultural production have multiplied, new conflicts with wildlife have arisen. The Kansas Wildlife Damage Control Program is now asked to respond to increasing numbers of requests for assistance on a wide variety of problems. Increased demands on the program have not, however, been supported by an increase in budget or staff.

At present, one Extension Specialist is responsible for wildlife damage control throughout Kansas. The requested increase of $90,000 would provide for the addition and support of three Extension Assistants.

**Renewable Resources Extension Act** $6,000,000

Defenders of Wildlife recommends that the Subcommittee earmark $6,000,000 to adequately support conservation of renewable resources under the Renewable Resources Extension Act.

The Renewable Resources Extension Act (RREA) was passed in 1978 to provide for a comprehensive extension program for management of renewable resources on private lands. Funding levels have thus far not been adequate to provide for the addition and support of one natural resources position in each state. The requested $6,000,000 will permit states to provide for a renewable resources specialist (area of resource need, such as wildlife, forest, rangeland, is determined by the state), to work with private landowners in conserving natural resources.

## AGRICULTURAL RESEARCH SERVICE

TOTAL REQUEST - $50,000

**National Arboretum - Carl Buchheister Bird Garden $50,000**

Defenders of Wildlife recommends that $50,000 be earmarked for the continued support of the Carl Buchheister Bird Garden at the National Arboretum.

Requested FY89 funding would ensure continued support of Garden staff. In addition, with these funds the National Arboretum, through the Bird Garden, will continue its efforts to educate homeowners about the importance of providing for birds in landscape plans. As wildlife habitat is continually reduced, all efforts to encourage its partial replacement by property owners become vitally important.

## STATEMENT OF JOHN DILLARD, PRESIDENT, DELTA COUNCIL

MY NAME IS JOHN DILLARD AND I FARM COTTON, RICE, CATFISH, AND SOYBEANS IN THE MISSISSIPPI DELTA. I CURRENTLY SERVE AS PRESIDENT OF DELTA COUNCIL, AN ORGANIZATION REPRESENTING THE AGRICULTURAL AND BUSINESS LEADERSHIP OF THE NORTHWEST MISSISSIPPI REGION, COMMONLY KNOWN AS THE MISSISSIPPI DELTA. THANK YOU FOR ALLOWING ME TO PRESENT THIS WRITTEN STATEMENT ON BEHALF OF DELTA COUNCIL AND THE CITIZENS OF NORTHWEST MISSISSIPPI.

THE MISSISSIPPI DELTA CONTAINS APPROXIMATELY 25 PERCENT OF THE LAND AREA AND POPULATION OF THE STATE OF MISSISSIPPI. ACCORDING TO MOST SOCIO-ECONOMIC INDICES, THIS REGION IS PERHAPS THE POOREST IN THE NATION. SINCE 1960, THE 18 COUNTY MISSISSIPPI DELTA REGION HAS EXPERIENCED AN INCREASE IN TOTAL EMPLOYMENT OF 15,501, AN INCREASE IN THE NUMBER EMPLOYED IN MANUFACTURING OF 19,324 AND AN INCREASE IN PER CAPITA INCOME OF $7,562 AND MEDIAN FAMILY INCOME OF $18,723. THESE INCREASES, HOWEVER, ARE OFTEN OVERSHADOWED BY THE STILL EXISTING HIGH RATES OF UNEMPLOYMENT (MARCH UNEMPLOYMENT FIGURES SHOW SHARKEY COUNTY WITH 27.8%; TUNICA COUNTY WITH 21.7%; AND HOLMES COUNTY WITH 18.8%) UNEMPLOYMENT RATES ARE PARTICULARLY HIGH AMONG THE MINORITY POPULATIONS. LOW EDUCATION LEVELS, LOW PER CAPITA INCOME AND LOW JOB OPPORTUNITIES CONTINUE TO DEPRESS THE REGION. THE POPULATION OF THE 18 COUNTY REGION IN NORTHWEST MISSISSIPPI HAS EXPERIENCED A DECREASE OF OVER 36,000 PEOPLE SINCE 1960. THESE FACTORS CLEARLY INDICATE THE ECONOMIC TROUBLES BEING EXPERIENCED IN OUR REGION, AND DEMONSTRATE THE NEED FOR CREATIVE AND INNOVATIVE IDEAS TO ENHANCE RURAL ECONOMIC DEVELOPMENT.

THE TRADITIONAL SOURCES OF JOBS AND WEALTH IN THE DELTA, AGRICULTURE AND MANUFACTURING, ARE SIMULTANEOUSLY DECLINING. WITH THE TRADITIONAL METHODS OF ECONOMIC DEVELOPMENT NOT EXPECTED TO OFFSET THE ADVERSE TRENDS FACING RURAL COMMUNITIES, IT APPEARS IMPERATIVE THAT A COMPREHENSIVE ECONOMIC DEVELOPMENT PLAN FOR THE 18 COUNTY DELTA AREA WHICH EFFECTIVELY ADDRESSES PROBLEMS, CHALLENGES AND OPPORTUNITIES BE INITIATED AND AGGRESSIVELY IMPLEMENTED.

IT IS THIS INITIATIVE WHICH LEAD US TO THE CREATION OF THE DELTA PROJECT, AN IN-DEPTH SOCIO-ECONOMIC STUDY DESIGNED TO SERVE AS A TOOL FOR BUILDING THE DELTA'S FUTURE. THE DELTA PROJECT, A MULTI-FACETED LONG-RANGE DEVELOPMENT PLAN BEING CONDUCTED BY THE SOCIAL SCIENCE RESEARCH CENTER AT MISSISSIPPI STATE UNIVERSITY AND SUPPORTED BY THE MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION AT MISSISSIPPI STATE UNIVERSITY, IS COMPREHENSIVE IN SCOPE AND FOCUSES ON THE FUNDAMENTAL ECONOMIC, SOCIAL AND POLITICAL FORCES THAT EITHER ENHANCE OR IMPEDE THE ADVANCEMENT OF THE REGION. THE FIRST FOUR YEARS OF THE DELTA PROJECT'S ACTIVITIES INVOLVE A COORDINATED EFFORT TO BRING TOGETHER A TEAM OF SCIENTISTS AND DELTA LEADERS WITH COMMON GOALS FOR PROMOTING GROWTH AND DEVELOPMENT OF THE REGION. FOUR MAJOR TYPES OF ACTIVITIES WILL BE CARRIED OUT DURING THIS FOUR YEAR PERIOD: 1) COMPUTERIZED INFORMATION SERVICES FOR DEVELOPMENT, 2) STATISTICAL PORTRAIT OF THE MISSISSIPPI DELTA, 3) ALTERNATIVE FUTURES FOR THE DELTA, AND 4) PROGRAM DEVELOPMENT AND IMPLEMENTATION.

COOPERATION AND SUPPORT BY LEADERS AT THE NATIONAL, STATE AND LOCAL LEVEL ARE ESSENTIAL TO THE SUCCESSFUL DEVELOPMENT OF THE REGION. SENATOR THAD COCHRAN AND SENATOR JOHN STENNIS OF MISSISSIPPI HAVE BEEN INVOLVED IN THE PROJECT. THIS SUPPORT COMBINED WITH THE BACKING OF GOVERNOR RAY MABUS OF MISSISSIPPI AND THE LOCAL LEADERS INVOLVED, WILL INSURE THAT OUR RESEARCH AND DEVELOPMENT PROJECT CAN AND WILL HAVE A DIRECT BENEFIT TO THIS UNDERDEVELOPED ECONOMICALLY DEPRESSED REGION.

IN CLOSING, THIS FOUR YEAR RESEARCH AND DEVELOPMENT PLAN, DEVELOPED UNDER THE DIRECTION OF A 30 MEMBER DELTA BASED ADVISORY COMMITTEE IN COOPERATION WITH MISSISSIPPI STATE UNIVERSITY, MISSISSIPPI'S LAND GRANT UNIVERSITY, WILL PROVIDE A FRAMEWORK FOR A FLEXIBLE LONG-RANGE PLANNING VEHICLE FOR PERHAPS THE MOST UNDER-DEVELOPED REGION IN THE UNITED STATES: THE MISSISSIPPI DELTA.

## STATEMENT OF DANIEL E. SHAUGHNESSY, PRESIDENT, EXPORT PROCESSING INDUSTRY COALITION

The Export Processing Industry Coalition supports U.S. exports of processed and value-added agricultural products. It is comprised of the National Soybean Processors Association, the Corn Refiners Association, the Millers' National Federation, and the following members of the AFL-CIO:

Allied Industrial Workers of America; American Federation of Grain Millers; Bakery, Confectionery & Tobacco Workers; International Molders & Allied Workers; International Union of Operating Engineers; International Woodworkers of America, Oil, Chemical & Atomic Workers International Union; United Brotherhood of Carpenters Joiners; International Brotherhood of Boilermakers; Iron Shipbuilders, Blacksmiths, Forgers and Helpers; United Steelworkers of America.

Also supporting this statement are: CARE, National Cooperative Business Association, Protein Grain Products International, Rice Millers' Association, and the U.S. Overseas Cooperative Development Committee.

We are members of the agriculture and labor communities who are interested in a successful Food for Peace program and one that is conducted in accord with the law. We are deeply concerned, therefore, over recent public statements by Administration representatives that they do not expect to meet this year the 1.425 million ton subminimum required for distribution abroad under PL 480 Title II.

The Congressional mandate in PL 480 is clear: "The minimum quantity of agricultural commodities distributed under [Title II] for each of the fiscal years ending September 30, 1987, September 30, 1988, September 30, 1989, and September 30, 1990, shall be 1,900,000 metric tons, of which not less than 1,425,000 metric tons for nonemergency programs shall be distributed through nonprofit voluntary agencies, cooperatives, and the World Food Program; unless the President determines and reports to the Congress, together with his reasons, that such quantity cannot be used effectively to carry out the purposes of this title."[emphasis added] This Committee voted ample funds for Title II in fiscal 1988 to enable compliance with the law.

So we find it incomprehensible that with (1) the abundance of agricultural supplies in the United States, (2) the need for non-emergency as well as emergency feeding of hungry people overseas, (3) the Congressional passage of FY 88 Title II appropriations above the budgeted amount, and (4) the clarity of the statutory mandate, the Administration can fail or even consider failing to meet the legal minimum.

Congress enacted the subminimum purposely as a means of providing an assured, predictable supply for regular food aid programs. The intent was to protect this flow from the bureaucratic and political pressures which typically occur in any given year. Both foreign recipients and U.S. suppliers could proceed more efficiently and effectively with a regular flow of commodities. If Private Voluntary Organization requests deviated from expected levels, adjustments could be made in World Food Program contributions. Emergencies and politically-dictated shipments were given scope in other portions of the PL 480 law.

If there are other considerations causing Administration officials this year to rearrange previously planned food programs, these problems should be dealt with under the appropriate legal authorities and not at the expense of meeting the statutory subminimum.

We ask this Committee to assure that the PL 480 operating agencies will carry out the law and Congressional intent on the subminimum. The agencies should tell Congress that yes, they will ship at least 1.425 million tons of Title II for nonemergency programs as required this year, and manage their programs accordingly.

An affirmative response from the Executive Branch will be needed promptly, because time is running out on Title II procurement opportunities for this year. A shipment to leave the United States by September 30, usually must be ordered during the third quarter of the fiscal year, which is now. Already a disturbing lag has developed in Title II shipments this year: as of April 6, 1988, less than one fifth of the total approved for fiscal 1988 had been shipped.

## LETTER FROM ROBERT W. KRAUSS, EXECUTIVE DIRECTOR, FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY

April 18, 1988

Quentin N. Burdick
Chairman
Subcommittee on Agriculture,
  Rural Development, and Related Agencies
Committee on Appropriations
U.S. Senate
Washington, DC 20510-6025

Dear Mr. Chairman:

The Federation of American Societies for Experimental Biology (FASEB) appreciates this opportunity to comment on the proposed budget for the U.S. Department of Agriculture for Fiscal Year 1989. FASEB is a federation of seven scientific societies with 29,000 working scientists as members. The research of many of them will be directly affected by the USDA appropriations legislation you are now considering.

We are joined in our comments by the Association of American Medical Colleges, which serves as the voice for 127 medical schools and students, 435 teaching hospitals, and 85 academic and professional societies.

We are deeply concerned that adequate funding be provided for the Animal and Plant Health Inspection Service (APHIS) to carry out its responsibilities for animal welfare inspection. Much of the critical biomedical research conducted by life sciences researchers is dependent upon the use of appropriate animal models. In conducting necessary research we are committed to humane treatment of animal subjects and to proper compliance with the laws and policies governing the use of these animals. The present uncertainty surrounding the regulations needed to enforce these laws and policies threatens to impede research aimed at reducing the suffering of animals as well as humans.

The Administration has recommended only $4.9 million for the animal welfare function under APHIS. This is a $1.3 million reduction from the FY 88 level. In their testimony the only justification Administration witnesses have offered for this proposed reduction has been the completion of the National Agricultural Library database. While significant, this step does not change what the law requires of APHIS nor does it diminish APHIS' needs for adequate funds to do its job.

In December 1985 Congress extensively amended the Animal Welfare Act to provide increased regulation of the care of laboratory research animals. APHIS was assigned the task of writing and enforcing the regulations that would translate these amendments into guidance for the laboratory researcher. These regulations are still being developed, but it is clear that carrying out the law will impose heavy burdens on the laboratories and on APHIS. If APHIS is inadequately funded the result will be increased confusion and uncertainty and the impeding of important research that uses laboratory animals.

If APHIS is to play its legislatively assigned role of guiding researchers in the requirements of the recently amended Animal Welfare Act it must have adequate resources. We believe that $10 million is the minimum required for APHIS to meet its responsibilities to Congress, the American public, and to the biomedical research community with which it must work. We urge that $10 million be provided for FY 1989.

Another area of concern to us is the level of funding for Competitive Research Grants under the Cooperative State Research Service. These grants support much of the basic research on which the other aspects of USDA depend so heavily. For example, the administration is requesting, and should receive, $3 million to fund research on human nutrition. Such research is vital to USDA and funded nowhere else in the federal budget.

For FY 88 the administration requested $44.5 million for all Competitive Research Grants and Congress appropriated $42.4 million. This year the administration is requesting $54.5 million. We believe this an appropriate level.

We appreciate this opportunity to present our views and are ready to provide any further information you might require on the subject.

Sincerely,

Robert W. Krauss
Robert W. Krauss, PhD
Executive Director
FASEB

Robert G. Petersdorf, MD
President
AAMC

## STATEMENT OF DANA HERRON, PAST PRESIDENT, WASHINGTON ASSOCIATION OF WHEAT GROWERS, AND DR. JAMES ZUICHES, DIRECTOR, COLLEGE OF AGRICULTURE AND HOME ECONOMICS RESEARCH CENTER, WASHINGTON STATE UNIVERSITY

Honorable Quentin Burdick and members of the Subcommittee. My name is Dana Herron and I have with me Dr. James Zuiches. We are here on behalf of Washington State University and the Wheat industry of the Pacific Northwest.

A Food and Human Nutrition Building on the Washington State University campus is under construction. The Washington State Legislature appropriated $13 million for Phase I of the building during its 1985-87 biennial session. The 99th Congress graciously appropriated $2 million start-up for Phase II of this important building in FFY 1987. The 100th Congress appropriated an additional $5.54 million for FFY 1988 under the Research and Facilities Act (PL 88-74) as amended by Section 1411 of the Food Security Act of 1985 (PL99-198).

We are here today to request your support for final appropriation of $5.54 million of federal funds in FFY 1989 needed to complete Phase II of the building. Your favorable response to this request will permit us to expand and continue the model federal, state, and private industry partnership that has been developed in the Pacific Northwest over the past decade.

The building now under construction will house federal and state scientists, state educators, and Cooperative Extension personnel dealing with the complex areas of food processing distribution and marketing in a worldwide context. Their work will include food marketing, processing, food quality, safety, human nutrition, and entomology. It is related to the International Marketing Program for Agricultural Commodities and Trade (IMPACT). These program results will stimulate market development and enhance the efficiency and profitability of agricultural producers in Washington, the Pacific Northwest, and throughout the nation. But the benefit of these programs will flow also to consumers and marketers of food products throughout the state, the region, and the nation.

The attached pages, titled Project Description contain more complete information on the total scope of the programs to be housed in this new building. In the interest of time, we shall not read what will be available for you to read at your leisure. But there is one part of the planned building that is of particular interest to me as a producer of wheat for food and seed, and to the Association of Wheat Growers that I represent, namely the Western Wheat Quality Laboratory.

The final determination on the milling and baking characteristics of new germ plasm and varieties and their suitability to consumers is provided by the Western Wheat Quality Laboratory. It tests the milling and baking properties of these advanced lines to determine whether or not they "fill the bill" from the consumers' perspective. A new wheat quality laboratory is included in the building to meet our current and future needs. Wheat growers in the Pacific Northwest have a long history of direct action to develop markets. We back this up with research support to the Agriculture Research Service and State Land-Grant Universities. But our industry must do even more to tailor-make its products to fit consumer demand. Just recently wheat growers in the Pacific Northwest employed a wheat products specialist to further link consumer demand characteristics to the type of wheat that must be produced and binned in order to be competitive.

We must increase our ability to adjust production to worldwide consumer needs through wheat and cereal breeding programs and germ plasm exploration and enhancement. These activities are being continued by federal and state scientists with supplemental industry funding to researchers now totalling more than $300,000 in Washington State alone. Wheat growers voted last month to double their assessment to the Washington Wheat Commission. This action essentially doubles their current programs of product development, promotion, education, and research. More than $1.25 million per year will be available from grower assessments under this program.

Completion of the Food and Human Nutrition facility and Wheat Quality Laboratory will permit us to upgrade and enhance our testing and product development programs. A pilot food processing plant is included to provide similar research results to other commodity groups in the region such as fruits and vegetables.

The construction of the building will include:

| Phase | Programs | Sq. Ft. | Cost | Funds |
|---|---|---|---|---|
| I | Food Safety, Food Quality, Human Nutrition | 35,970 | $13,721m | Funded by Washington State Legislature |
| II | Food Marketing, Wheat Quality, Dairy Processing and Entomology | 37,950 | $13,079m* | Request for matching from federal funds |

* $2 million ($1,940,000) "for start-up construction costs" was appropriated in FFY 1987 as stated in the Congressional Record of October 15, 1986, $5.540 million ($5,373,800) was appropriated in FFY 1988 for the project whose total cost is $13,079,000 ($12,687,600).

We sincerely appreciate the opportunity to bring this important project to your attention. We shall be pleased to respond to any questions you may wish to ask.

## PROJECT DESCRIPTION

### Introduction and Project Relevance

The Food-Human Nutrition Facility (FHNF) at Washington State University is a new building program designed to house the programs of the College of Agriculture and Home Economics which deal with aspects of foods from harvest to consumption, including human nutrition and some aspects of marketing. The building has been designed in two phases, with a total of 74,917 net square feet or 140,650 gross square feet. The total estimated cost of both phases is $26.800 million. The building site is adjacent to Clark and Johnson Halls in the present Agricultural Sciences complex in the northeast section of the Pullman campus. (See Perspective and Site Plan, Attachment A).

### Subject matter Programs Included in the New Building

### A. Food Marketing for Domestic and Foreign Markets

The University and College have a major thrust, IMPACT (International Marketing Program for Agricultural Commodities and Trade), which is conceived as a program for improving sales of food products grown in the state and other Pacific Northwest states. This program calls for developing new methods of marketing, processing and utilizing wheat, fruits and vegetables, beef and dairy products suitable for export to the Far East, as well as for domestic markets.

The Western Wheat Quality Laboratory (USDA-ARS facility) and the Food Science and Human Nutrition Department plan to house personnel to develop and test new processing methods for these commodities. The planned facility will improve the capabilities to enact this program by providing a new pilot food processing plant and a new Western Wheat Quality Lab. The latter facilities will also enhance the current service, provided federally, to wheat breeders, wheat scientists and domestic bakers by improving the capabilities to evaluate the new genetic varieties of wheat for their milling, baking and nutritionally acceptable characteristics.

### B. Food Quality, Food Safety, and Human Nutrition

The programs in research, teaching, and extension in Food Quality, Food Safety, and Human Nutrition have recently been merged into the new department of Food Science and Human Nutrition. These programs include research (both basic and applied) on cereal, fruit, vegetable and dairy products; research on human nutrition needs to prevent chronic disease and maintain good health, especially in the elderly; food additives and food supplements; and food safety. The food safety area will be enhanced in the new building by providing research laboratories in toxicology and microbiology. The capability of conducting human metabolic studies will be increased in the new facility by providing a new human metabolic unit, and nutrition biochemistry will be expanded to include tissue culture models. New facilities for testing the sensory properties of fresh and processed commodities will be included.

### C. Entomology and Biotechnology

Basic biotechnology in agriculture involves the development of new biological concepts which can be applied to solving problems in agricultural production and efficiency. Genetic engineering provides tools to modify the genetic potential of microorganisms, plants, and animals. Benefits of this work in the program at Washington State University include improved crop varieties, more rapid and diverse crop development, more productive animals, greater disease resistance, new nitrogen-fixing capabilities for plants and new products such as hormones to promote animal growth and health and improve efficiency in lactation and reproduction. The new building facility will provide new facilities to test products from the biotechnology programs in animal and plant sciences. It will provide for expansion of the plant biotechnology program in the Institute of Biological Chemistry now housed in adjoining Clark Hall by freeing up adjoining space now occupied by personnel that will move into the new building. Entomologists now housed in Johnson Hall will also move into the new FHNF, thereby permitting better utilization of space by those departments and personnel remaining in Johnson Hall including Plant Pathology, Agronomy and Soils, and Horticulture and Landscape Architecture.

## Phases of the New Building

### A. Phase I

The first phase of the building program houses, in one location, the recently merged departments of Human Nutrition and Foods, and

Food Science and Technology which now form the department of Food Science and Human Nutrition. These units are presently located at opposite sides of the campus, a distance which creates a lack of unity in the program. Phase I includes research and teaching laboratories, an office complex for the department as well as specialized research spaces such as the pilot processing plant, a sensory evaluation unit and human metabolic live-in unit. The first phase will meet the needs of the Food Quality, Food Safety, and Human Nutrition Program in the College of Agriculture and Home Economics.

The net (usable) square footage of Phase I is 35,970 square feet or 73,600 gross square feet. Funding for this phase was appropriated by the 1985 and 1987 Washington State Legislatures at the level of $12.721 million. An additional $1 million for furnishing "moveable equipment" was appropriated for the 1987-89 biennium. Phase I total funding is $13.721 million funded by state sources.

The Phase I building program document was completed in September, 1984, schematic drawings were completed in June, 1986; design development, December, 1986, and construction documents were completed in May, 1987. Bids were received September, 1987, construction started in October, 1987 with completion scheduled for March, 1989.

B. Phase II

The plan for the second phase of the facility includes:

1. Incorporation of the Western Wheat Quality Laboratory which will move six USDA-ARS scientists and support personnel from substandard, antiquated (1915), overcrowded facilities in Wilson Hall to larger, new, modern laboratories.

2. Addition of pilot plant spaces for research on storage and processing for potatoes, fruits and vegetables, and dairy products.

3. Addition of space for the Entomology department.

This phase will contribute to the Food Marketing and Biotechnology programs, already described, of both the state and federal programs. The phase will also allow for the expansion of overcrowded facilities in Johnson Hall currently housing USDA-ARS and state scientists in Plant Introduction and Agronomy. In addition, relocation from the facilities in Clark Hall will allow for an increase in excellence in the plant biotechnology program.

Phase II will have 37,950 net square feet and 67,050 gross square feet. The estimated cost assuming a bid date of December 1989 is $13.079 million. This amount constitutes the request for matching USDA federal funds to compare to the Washington State funded Phase I of $13.721 million.

The University proposed design for Phase II will begin in May 1988, employing the current design team to maximize planning continuity and to reduce design time and fees. Any extended delay in funding Phase II could reduce opportunities for designing a cohesive building. "Add-on" research facilities especially for the Pilot Plant and the Wheat Quality Laboratory should be integrated into the comprehensive building. Inflationary and redesign costs can be avoided by sequential architectural planning and construction of both phases.

## SIGNIFICANCE OF THE CONTRIBUTION OF THE MATCHING FEDERAL FUNDS

### A. Significance to the University, College and Departments

The benefits to the University of the federal matching funds will be to accelerate a program of excellence in the areas of Food Science and Human Nutrition, Entomology, plant and animal biotechnology. While these programs have shown progress in the last few years, their potential expansion is hampered by a lack of laboratory space and equipment to push forward on the cutting edge of science. The administration, extension, instruction, and research programs of the new Food Science and Human Nutrition Department, including the Western Wheat Quality Laboratory, will be housed finally in one location. The international and national reputation of the University will be enhanced by the increased productivity and visibility of its state and federal scientists.

### B. Significance to Washington State, Regional Agricultural Industries, and Consumers

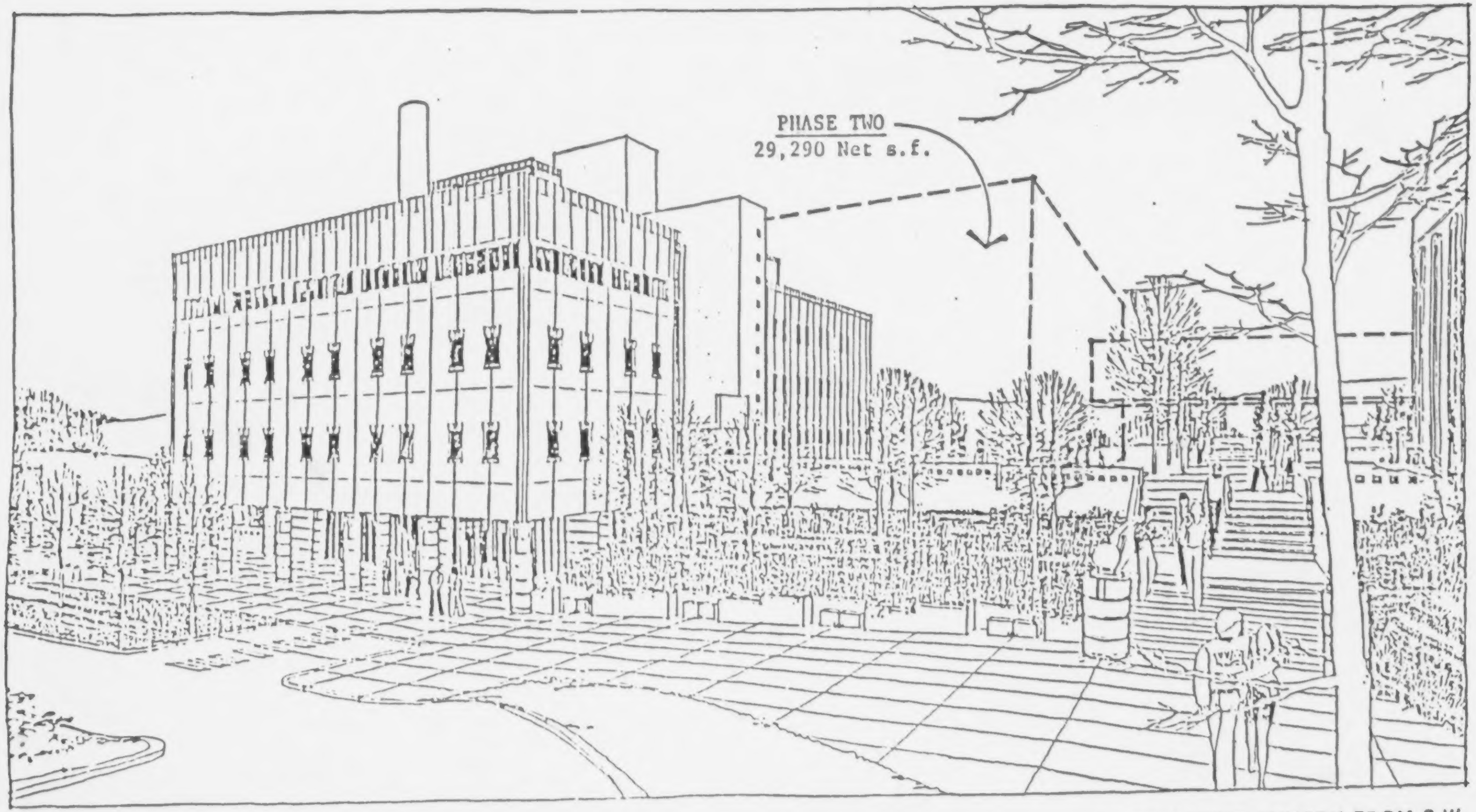
The cereal, fruits, vegetables, beef, dairy, and other commodity groups will all benefit from the new research, educational, and extension programs arising from the housing of faculty-scientists in this new facility. The problems of turning surplus crop production, eg. soft wheat, apples, into marketable products will be addressed by both the Wheat Quality Lab (USDA-ARS) and by the Food Science groups. The problems associated with producing new and resistant varieties of wheat and more efficient beef and dairy cattle will be addressed at the basic level by scientists in the plant and animal biotechnology programs. The problems of producing high quality food products acceptable to consumers with their current high interest in dieting, nutrition in relationship to chronic diseases such as heart disease and cancer, taste and cost will be addressed by food scientists and nutritionists.

### C. Significance to the Pacific Northwest (PNW) Region and the Nation

This facility will benefit and augment the cooperative ventures between the Pacific Northwest (PNW) states and the USDA-ARS Western Region agriculture program. The tri-states of the PNW (Washington, Idaho, Oregon) have a number of existing programs which coordinate research efforts among experiment station scientists and federal scientists. For example, there are 33 USDA-ARS scientists (of a state total of 74 scientists) in the Washington State ARS workforce who are housed with their support staff on the Pullman campus. These scientists cooperate in tri-state projects such as TCK smut of wheat, tri-state variety release programs, screening of wheat varieties from Oregon, Washington, Idaho, Montana, and California for quality characteristics in milling and baking. They also cooperate closely in potato research, and in soil conservation programs (STEEP) for Palouse wheat and legume crops. The states of Oregon and Washington share Cooperative Extension specialists in Horticultural Tree Fruit Crops, and Washington and Idaho are beginning a new program of exchanges on sheep/swine production research. Classes in these areas are joint-listed between the two state universities and students interact with federal and state scientists in both locations. The Graduate Programs in Nutrition at Washington and Oregon State University are approved programs under the WICHE Program (Western Interstate Committee on Higher Education) whereby students from any state in the Western Region can obtain an advanced degree with reciprocal in-state tuition costs.

The Region will be enhanced by the building program at Washington State, since the opportunities for creative and cooperative interdisciplinary research, teaching, and extension in the process between product harvest and consumer will be enriched.

This also represents a unique opportunity in time for the national research coordination effort between USDA federal and state agricultural interests to match funding for a regionally and state supported federal/state research facility.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PERSPECTIVE SKETCH FROM S.W.

## STATEMENT OF DR. I. GARTH YOUNGBERG, EXECUTIVE DIRECTOR, INSTITUTE FOR ALTERNATIVE AGRICULTURE, INC.

I am Garth Youngberg, Executive Director of the Institute for Alternative Agriculture, Inc., a private, non-profit agricultural research and education organization with offices in Greenbelt, Maryland. The Institute, which is governed by a 12-member grass-roots Board of Directors, seeks to advance, through the development of research and education programs, systems of food and fiber production that are economically profitable, resource conserving, environmentally sound, and sustainable in the long term. The Institute is grateful to the Subcommittee for the opportunity to testify again this year on Subtitle C of Title 14 of the Food Security Act of 1985.

Because this Subtitle seeks to develop expanded research and education programs directly germane to reduced input farming systems, the Institute is strongly supportive of increased appropriations for this Subtitle. We believe it addresses a number of important needs, concerns, and opportunities.

Before briefly discussing these matters, however, I want to earnestly thank the members of this Subcommittee and the other members of Congress who favored start-up funding for this new program last year. Indeed, our Board of Directors and members are extremely grateful for your far-sighted support of this important new initiative.

We hope you are all aware that the impact of this relatively modest program has been overwhelmingly positive. It has been remarkably well received by most sectors of the so-called conventional agricultural community. Moreover, it has given new hope to those agriculturalists who have long struggled for a more balanced approach to agricultural production techniques, approaches that minimize or even avoid the use of expensive, petroleum-based fertilizers and pesticides. In a very real sense, this program has helped galvanize support for sustainable agriculture among an impressive array of farmers and agricultural institutions. In this regard, the program's emphasis on farmer participation and public-private sector cooperation is particularly noteworthy.

We have known for a long time that a substantial proportion of the agricultural community supports the full and impartial examination and development of low-input farming systems. However, the seed money provided last year under Subtitle C has invigorated the expanding coalition of farmers, scientists, consumers, conservationists, policymakers, and administrators who believe that low-input farming systems offer significant opportunities for addressing many of agriculture's most pressing problems. In a practical sense, this seed money has, for the first time, made it possible for many of these individuals and institutions to demonstrate their commitment to sustainable agriculture.

In this regard, we hope you realize that a great deal has already been accomplished under this new initiative. The many positive organizational, planning, and administrative activities fostered to date in response to this modest program is truly striking, if not unprecedented. We have been highly impressed with the measures taken so far to implement this effort. Indeed, given the enormous enthusiasm for this program throughout the agricultural community, increased funding in FY 1989 and beyond is clearly justified.

In many respects, action on this issue now is critical to the viability and potential of this program. Proponents and critics alike are watching developments in this area of research and education very closely. The systems oriented, interdisciplinary programs called for in this legislation are essential to the refinement and wider-scale adoption of low-input farming practices. We believe it is highly unlikely that these unique and innovative approaches can succeed without substantial new monies. In fact, we further believe that continued funding at current levels would not convince administrators and scientists that the Congress views low-input systems as a permanent and significant field of scientific and practical merit. Your action last year on this issue sent a strong signal to the agricultural community that we can no longer afford to overlook the potential contributions of low-input farming systems for both the short- and long-term sustainability of our family farms, small rural communities, and natural resources. We urge the Congress to send an even stronger signal this year. Anything less could seriously impede, and perhaps even reverse, the impressive and constructive momentum currently underway.

Next, I would like to turn briefly to a specific area of research germane to low-input agriculture. Over the past 3 years, the Institute for Alternative Agriculture has sponsored symposia on biotechnology, groundwater problems, and biological methods of pest control. These symposia, particularly the one on biological control held in March of this year, have brought to the forefront some important opportunities and needs. Following the symposium, our president, James R. Lukens, noted that "this symposium demonstrated anew that the goals of alternative agriculturalists are now converging with many of the objectives of so-called conventional or mainstream scientists and farmers."

Successes in the biological control of rangeland and aquatic weeds with plant-feeding insects, of cropland weeds with fungi, of the alfalfa weevil with parasites, of the cabbage looper with bacteria, of the boll weevil with a pheromone, and of soil-borne diseases with fungi and bacteria have demonstrated that biological control is capable of substantially reducing both production and environmental costs. Thus, the value of pursuing development of biological methods of control is becoming increasingly evident.

A growing number of small venture-capital-financed companies are attempting to develop more biological methods of control, and some large companies are beginning to increase their investments in this area. However, biological control methods are effective against only a limited number of pests. Accordingly, market size is usually rather small, compared to that of broad spectrum pesticides, thus limiting incentives for private investors. Therefore, an increased involvement of the public sector in cooperation with industry is needed to accelerate the development and use of biological controls.

Several USDA officials indicated at our recent symposium that USDA proposed to OMB a budget increase for FY 1989 of $8 million for biological methods of pest control, as part of its initiative related to groundwater, and that OMB disallowed the increase. We applaud the Administration's recommended budget increases to study the fate and application of pesticides but also would urge Congress to include increases for research on biological methods of pest control. Here, opportunities for increased private sector involvement should be explored.

In closing, we urge the Subcommittee to provide $15 million for Subtitle C of the Food Security Act of 1985 and to provide the $8 million that USDA requested of OMB for research on biological methods of pest control. If adequately funded, these programs could help our Nation's farmers reduce production costs, while simultaneously addressing other important needs such as resource conservation, improved environmental quality, and long-term sustainable food production. Given agriculture's current uncertain competitive position in world agriculture, mounting threats to the Nation's soil and water resources, and the continuing demise of our small rural communities and family farms, the need for some adjustments in technological inputs is apparent. We urge the Subcommittee to thoughtfully consider how reduced input systems of production and a special initiative on biological methods of pest control can help provide answers to these and other pressing problems and needs.

Thank you.

## STATEMENT OF THOMAS J. CLIFFORD, PRESIDENT, UNIVERSITY OF NORTH DAKOTA, IN SUPPORT OF THE INSTITUTE FOR EARTH SYSTEMS SCIENCE

The University of North Dakota is requesting federal appropriations in the amount of $8.4 million to build a facility to house an Institute for Earth Systems Science. The proposal calls for a unique, if relatively modest, approach to providing agricultural planners and food producers in the northern Great Plains with more timely, reliable and versatile information about weather and climate than is currently available to them. The aim of this regional program would be to help these users deal more intelligently with day-to-day and season-to-season variability in soil moisture, temperature, and precipitation including the ravages of drought and hail.

Striking advances in technology have opened new doors to vital information about the land and its atmosphere. Satellites and high-speed computers make it possible now to access vital information about Earth's resources and the dangers facing the ecosystem so vital to healthy agriculture and human survival.

An established atmospheric research program, featuring first-rate scientists and specialized facilities, is already in place at UND. With funding to establish the proposed Institute, the program will be expanded into much-intensified scientific activities focusing on using remote sensing to meet the specific weather and climate information needs of the regional farming community.

In addition to weather and climate studies, the applications for the proposed Institute's remote sensing research are numerous: determining vegetative shifts, monitoring pest infestation and disease, detecting pollutants in runoff, assessing crop yield estimates, inventorying wetlands, conducting groundwater and soil analyses.

This proposal should be viewed, however, in its largest context. That is, by gearing up to meet the immediate needs of regional agriculture, the proposed Institute quite readily lays the framework for dealing with the more serious weather- and climate-related problems that are expected to diminish this nation's crop-producing capacity in the not-too-distant future.

As resilient as our farmers have been to the occasional bad year or two, we should be thinking -- and planning -- for the next decade and into the new century. In that span of time, scientists are predicting some rather large-scale alteration of the atmosphere brought on by human disruption to the natural cycling of materials in the air, water, and soil. These activities, such as increasing atmospheric deposition of carbon dioxide and chlorofluorocarbons, are expected to take the form of changing weather patterns and shifting climatic cycles.

The first step to understanding the changes in weather patterns that pose a threat to the health and longevity of American agriculture is to learn more about the atmosphere itself. The answers are incredibly complex, partly because atmospheric systems are incredibly complex and partly because we still know so little about them. But, the challenge is clear, the timing critical.

It really is imperative that we immediately seek a comprehensive understanding of those combinations of atmospheric processes that shape our weather and -- as such -- determine availability of water for growing crops and regulate the amount of the Sun's energy available for photosynthesis.

Concern about world food and water shortages has escalated significantly in the wake of spreading environmental deterioration. The reason for this concern becomes obvious, indeed, at a time when humans -- in the face of growing populations and rising living standards -- are not only depleting freshwater supplies at alarming rates, but are also taking an unprecedented toll on the environment in other ways: contaminating groundwater, burning fossil fuels, stripping forest cover, polluting air.

The key point of this proposal is that a usable technology and the expertise are available to make it both scientifically possible and well within sight for UND to meet a variety of short- and long-term needs of regional agriculture. Learning more about the atmosphere is not a panacea. It could be, however, a genuinely worthwhile component of a national program committed to increasing the efficiency, profitability, and longevity of this nation's crop production capacity.

As the world edges closer to shrinking margins of safety in meeting human needs for food and water, the intrinsic value of these scientific endeavors and implications for society are, indeed, profound. In fact, the economic and social justifications are so great that enhanced remote sensing programs might well be considered one of the most important creative problem-solving approaches for American agriculture of the day.

We believe UND, with its well-equipped and nationally-recognized atmospheric science program, is uniquely suited for this most compelling task. It has demonstrated an impressive record of high quality scientific work and has earned a respected reputation in the scientific community. Moreover, its special competence in cloud study and precipitation patterns is directly related to the kind of problem prescribed: developing the science and technology needed to address critical agricultural problems. Furthermore, it has demonstrated both a commitment and capability for applying science to meet the specific needs of users in both the public and private sector.

By funding this proposal for a specialized Earth Systems Science facility at the University of North Dakota, USDA has a rare and meaningful opportunity to set into motion an expanded program of research that could help provide American agriculture with a virtual treasure chest of tools with which to reap the most of the only living habitat we have.

## STATEMENT OF GORDON C. ROBERTSON, LEGISLATIVE COUNSEL, INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES

The International Association of Fish and Wildlife Agencies, founded in 1902, is a quasi-governmental organization of public agencies charged with the protection and management of North America's fish and wildlife resources. The Association's governmental members include the fish and wildlife agencies of the states, provinces and federal governments of the U.S., Canada, and Mexico. All 50 states are members. The Association has been a key organization in the promotion of the principles of sound resource management and the strengthening of federal, state and private cooperation in protecting and managing fish and wildlife and their habitats in the public interest.

### AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE (ASCS)

An adequately funded Agricultural Stabilization and Conservation Service (ASCS) budget is essential for meeting its responsibilities of implementing conservation provisions and programs mandated by the 1985 Food Security Act. For the first time in FY 1988, funding for the Conservation Reserve Program (CRP) is appropriated directly to ASCS rather than through transfer from the Commodity Credit Corporation (CCC). The 1988 enacted ASCS budget included a net CRP appropriation of $1,085 million after $45.2 million was transferred to the Soil Conservation Service (SCS) for technical assistance and related programs. In addition to direct CRP appropriations, ASCS continues to receive funds transferred from CCC for salaries and expenses associated with implementing CRP and other conservation provisions of the 1985 Farm Act. The enacted budget in FY 1988 for ASCS salaries and expenses was $565 million.

The Administration's FY 1989 budget recommends CRP funding of $1,864 million and $580 million for salaries and expenses. The recommended CRP appropriation includes monies for annual rental payments for 5 to 6 million acres or more estimated to be enrolled during FY 1989, and for part of the costs of technical assistance and cost-sharing necessary to establish protective vegetative cover on CRP lands. The funds used for CRP result in a net savings of several billion dollars to the federal government. About two-thirds (14.6 million acres) of all CRP acreage enrollment is commodity base acreage. CRP payments to take these highly erodible lands out of commodity production are cheaper than continuing to pay landowners under alternative land programs where highly erodible lands are cropped intensively. In addition, CRP substantially reduces soil erosion, improves water quality, enhances habitats for wildlife, places agricultural land use on a sustainable basis, and offers alternative income opportunities for farmers (e.g. forest products including fish and wildlife.)

The Association commends the U.S. Department of Agriculture (USDA), and ASCS in particular, for implementing the Conservation Reserve Program and urges continuation of appropriated funding to meet yearly acreage objectives to place 45 million acres in the CRP by 1990. The Association supports provisions that ensure adequate staff years of effort and funding necessary for ASCS implementation of the Conservation Reserve Program, including the establishment of protective vegetative cover. The Association further recommends that Congress examine ASCS funding and staffing levels and distributions carefully to help ensure that sodbusting and swampbusting provisions are implemented and enforced fully and fairly.

The Association is deeply concerned about the proposed termination of ASCS funding for conservation cost-sharing programs, particularly the Agricultural Conservation Program (ACP), Forestry Incentives Program (FIP) and the Water Bank Program (WBP). The enacted 1988 ASCS budget provided $176.9 million for ACP, $11.9 million for FIP and $8.4 million for WBP. The Agricultural Conservation Program should be continued to assist farmers in implementing conservation management plans for highly erodible lands scheduled for completion on as many as 160 million acres by 1990. The Forestry Incentives Program provides assistance to small private landowners to improve forest management--a critical need on almost two-thirds of the U.S. non-industrial forest lands. The Water Bank Program offers farmers incentives for protecting and enhancing private wetlands with a high potential for conversion to agriculture. It is especially crucial that the Water Bank Program is continued throughout the initial implementation period of the final swampbuster regulations.

The Association supports continuation of the Forestry Incentives Program at FY 1988 levels and recommends increasing the funding level for the Water Bank Program to $10 million to further enhance wetland protection measures.

In the view of the Association, the stewardship and management of the resource base is essential to the Nation's security. National resource management expenditures are investments for perpetuating the economic well being and welfare of the Nation's citizens.

Member states of the Association are prepared to assist USDA agencies, particularly ASCS, SCS and U.S. Forest Service, in developing plans, and implementing and evaluating programs called for in the Food Security Act of 1985. The Association requests that the Congress ensure such cooperative efforts take place, not only by requiring cooperative working relationships, but by authorizing transfer of funds to the state conservation agencies to ensure that joint efforts are completed effectively. The considerable expertise available in the state fish and wildlife agencies can be instrumental in obtaining multiple benefits in the best public interest from the sizable USDA expenditures using taxpayers' funds.

The North American Waterfowl Management Plan calls for working with agricultural interests to implement the Plan. The Association encourages ASCS to assist the U.S. Fish and Wildlife Service and the state fish and wildlife agencies in implementation of the actions called for in each of the six joint ventures of the Plan now being finalized.

## SOIL CONSERVATION SERVICE (SCS)

The Soil Conservation Service, as well, has responsibilities for implementing conservation provisions of the 1985 Food Security Act and addressing nonpoint source pollution mandates of the 1987 Clean Water Act. The 1988 enacted budget included $676.6 million and 14,177 staff years for carrying out SCS activities and responsibilities. The Administration's FY 1989 proposed budget reduces SCS funding by 11 percent to $602.8 million and 12,395 staff years. The requested funding level provides for continuation of all SCS programs except for the Great Plains Conservation Program which is proposed for termination in 1989.

The Association requests the Congress to examine the funding and staffing levels and distributions carefully to help ensure that all SCS programs and activities are sufficiently funded to fully meet all SCS responsibilities associated with implementing conservation provisions of the 1985 Food Security Act as scheduled for FY 1989. In addition, adequate funding and staffing levels must be maintained to provide technical services necessary to carry out continued implementation of ASCS conservation programs, especially:

- Conservation Reserve Program (CRP)
- Water Bank Program (WBP)
- Forestry Incentives Program (FIP)

Adequately supported resource inventory and monitoring, resource appraisal, watershed planning, and resource conservation and development programs are necessary to identify preventive and corrective actions for controlling erosion, nonpoint source pollution and other conservation problems. SCS programs and activities hold tremendous potential for preventing and controlling soil erosion on more than one-third of the Nation's cropland, while simultaneously improving water quality, habitats for wildlife, sustainability of agricultural land uses, and income for farmers. Funding and staffing priorities must focus on SCS activities and programs responsible for implementing conservation provisions of the 1985 Food Security Act.

The North American Waterfowl Management Plan calls for working with agricultural interest to implement the Plan. The Association encourages SCS to assist the U.S. Fish and Wildlife Service and state fish and wildlife agencies in implementation of the Plan now being finalized.

## EXTENSION SERVICE--U.S. DEPARTMENT OF AGRICULTURE

The Administration proposes a 16 percent reduction ($58.42 million) in the Federal investment in the Cooperative Extension System. This will result in a substantial reduction in formula funds to the States, as well as the elimination of a number of extremely important programs.

The Association recognizes the need to restore the Administration's budget request to FY 1988 appropriation levels and to address the issue of expanded investments in education programs that focus on critical national natural resource issues.

We commend the Cooperative Extension System and the Extension Service, USDA, on the process that has been set in motion over the past two years. This process has resulted in the identification of National Priority Issues and the development of Program Initiatives to address these issues. Through this process the System is focusing its resources on economic, social and environmental issues of critical concern to the Nation. We are extremely interested in all eight of these initiatives. However, from our perspective, two are of singular importance. They are Water Quality and Conservation and Management of Natural Resources.

The Administration's current budget proposal for the Cooperative Extension System would remove the mechanisms that would enable the System to capitalize on the considerable momentum that has already been generated.

An explicit example is the termination of funds to support the authorities of the Renewable Resources Extension Act of 1978. This legislation authorized $15 million to support expanded and comprehensive Extension education programs in each state in the Nation.

Although appropriations have not approached the authorization level, they have provided both a leveraging effect in the states, and a sense of a national commitment to the importance of investing state and local funds in natural resource programs.

As a result of RREA appropriations, states have invested three of their own dollars of every RREA dollar appropriated. We do not want to lose this state and local commitment and investment.

In the case of Water Quality, no appropriation has been requested in the Administration's budget. This issue of water quality, particularly the voluntary reduction of non-point sources of contaminants and the development of an understanding of the benefits of clean water on the part of the citizens of this Nation is of extreme urgency. The education programs of the Cooperative Extension System are an integral element in dealing with these problems.

Having reviewed the Administration's budget request and its implications, the Association recommends the restoration of the Extension Service budget to FY 1988 levels; the increase of the Renewable Resources Extension Act (RREA) to $6 million; and the addition of $15 million to support the Water Quality Initiative.

## LETTER FROM JOAN M. KOVALIC, EXECUTIVE DIRECTOR, INTERSTATE CONFERENCE ON WATER POLICY

April 29, 1988

Senator Quentin N. Burdick
Chairman
Subcommittee on Rural Development,
Agriculture & Related Agencies
SD-140 Dirksen Senate Office Building
Washington, D.C. 20510

RE: ICWP Testimony on PL-566 Small Watersheds Program

Dear Senator Burdick:

On behalf of the Interstate Conference on Water Policy (ICWP), John Morris (NC), ICWP's Chairman and I thank you for providing ICWP with the opportunity to present written testimony for inclusion in the record of the April 26-28, 1988 hearings of the Subcommittee on Rural Development, Agriculture, and Related Agencies. As the only national association of State, interstate, and regional water administrators concerned with both water quality and quantity issues, ICWP members are vitally concerned with the Small Watershed Protection and Flood Prevention Program under PL-566.

ICWP has long been committed to a cooperative partnership between federal and non-federal interests in solving the nation's water resources problems. The partnership involved in the Small Watershed Protection and Flood Prevention Program under PL-566 and PL-534 requires a non-federal funding commitment from state and local sponsors and a similar federal commitment through the U.S. Department of Agriculture and the Soil Conservation Service. The maintenance of a healthy and viable partnership requires that our federal partners have the financial means to fulfill the responsibilities defined in the various cooperative agreements.

ICWP supports a reasonable level of funding for the Small Watershed Protection and Flood Prevention program to meet the goals of this water resources initiative and urges the subcommittee and other members of the Congress to move to restore the fiscal viability of the entire PL-566 effort.

Enclosed is ICWP's written testimony for inclusion in the record of the April 26-28 hearings of your subcommittee. We hope you will respond favorably to our concerns. If you have any questions, please call me or Kerry Kelly, ICWP Manager at (202) 466-7287.

Sincerely,

Joan M. Kovalic, Esq.
Executive Director

Enclosure (1)

## STATEMENT OF DAVID C. YAECK, MEMBER, LEGISLATIVE COMMITTEE, INTERSTATE CONFERENCE ON WATER POLICY

The Interstate Conference on Water Policy (ICWP) is the independent association of state, interstate and regional water administrators concerned with water quantity and quality management, conservation and development. Since 1959, ICWP has been the voice for state water resource management concerns, particularly with regard to the relationship between state and federal programs, regulatory authority and information exchange.

ICWP has long been committed to a cooperative partnership between federal and non-federal interests in solving the nation's water resources problems. The partnership involved in the Small Watershed Protection and Flood Prevention Program under PL-566 and PL-534 requires a non-federal funding commitment from state and local sponsors and a similar federal commitment through the U.S. Department of Agriculture and the Soil Conservation Service. The maintenance of a healthy and viable partnership requires that our federal partners have the financial means to fulfill the responsibilities defined in the various cooperative agreements.

The FY 1989 budget proposal which is the subject of this hearing falls short of that goal.

To maintain the integrity of the Small Watershed effort, a total of $271 million would be required over each of the next three years. This annual total represents $208 million for PL-566 operations, $10 million for PL-566 planning, $30 million in PL-534 planning and operations, $18 million for river basin studies and investigations and $5 million earmarked for emergency watershed protection.

By contrast, $186 million was appropriated for these water resources activities in 1987 and 1988. The administration has proposed only $116MM for FY 1989.

The efforts of the members of this subcommittee to maintain a reasonable level of funding for the PL-566 and PL-534 programs is appreciated by ICWP. However, each year the cumulative shortfall in funding on an annual basis impacts implementation schedules, affecting the work of the non-federal sponsors and increasing the overall cost of various projects now underway.

Data obtained from the National Resources Inventory and the National Oceanic and Atmospheric Administration underscore the importance of the Small Watershed Protection and Flood Prevention Program. There are about 14,000 communities in the nation experiencing annual flood damage totalling more than $6 billion. Of this total, about 63 percent of such damages occur in upstream rural communities in those areas served by the USDA water resources programs. Damages from the physical effects of off-site sedimentation exceed $3 billion annually, representing the cost of roadway cleanup, public areas, homesites and certain other areas, as well as the cost of dredging to maintain transportation facilities.

The Small Watershed Protection and Flood Prevention program should be a source of pride for the Congress as it is for the non-federal interests which have participated since its authorization in 1954. During that time, 1,450 projects have been authorized and 669 have been completed. During the same period, recognizing the need to maintain program viability and integrity, 133 projects have been deauthorized as a result of economic or environmental considerations.

However, 584 projects remain actively under construction and are pursued as federal funds become available.

During the past year, 11 planning starts were approved - admittedly a modest program in light of previous activity - but significant in terms of meeting the goals of the PL-566 Act.

·Total federal cost share of these new projects is estimated to be $9.4 million, with 54.7 percent of the costs to underwrite sedimentation and erosion control efforts. Flood prevention accounts for 28.3 percent of the cost and 17 percent is targeted for water quality improvement.

Since 1983, 182 projects have been approved for planning representing a federal investment of $281.8 million with the cost ratios assigned to the various elements of soil erosion and sediment control, water quality and flood prevention similar to those of 1988.

Personal experience with the program in Chester County, Pennsylvania, serves to emphasize the concern over underfunding of the PL-566 program. In 1962, the Congress authorized the Brandywine Watershed Work Plan and work has moved ahead in a timely fashion.

Four of the seven elements of the Work Plan have been constructed and design work is about to begin on the fifth structural component. The local cost-share - in this case 55 percent of the total - has been guaranteed through the proceeds of a bond issue, but the uncertainty of federal funding on an annual basis to meet construction schedules may escalate costs unnecessarily.

Discussions with colleagues involved with the Interstate Conference on Water Policy indicate this issue is of concern to all who are participating in the PL-566 program.

ICWP supports a reasonable level of funding for the Small Watershed Protection and Flood Prevention program to meet the goals of this water resources initiative and urges the subcommittee and other members of the Congress to move to restore the fiscal viability of the entire PL-566 effort.

Our mutual commitment to the goals of flood prevention, water quality improvement, soil erosion and sediment control requires such rededication.

## STATEMENT OF MARTIN C. JISCHKE, CHANCELLOR, UNIVERSITY OF MISSOURI-ROLLA

MR. CHAIRMAN AND MEMBERS OF THE SENATE APPROPRIATIONS SUBCOMMITTEE ON COMMERCE, JUSTICE, STATE, THE JUDICIARY AND RELATED AGENCIES, MY NAME IS MARTIN C. JISCHKE, I AM A RESIDENT OF ROLLA, MISSOURI, AND I HAVE THE HONOR OF SERVING AS CHANCELLOR OF THE UNIVERSITY OF MISSOURI-ROLLA--ONE OF THE NATION'S LEADING TECHNOLOGICAL UNIVERSITIES.

I WOULD LIKE TO THANK YOU FOR THIS OPPORTUNITY TO TESTIFY ON BEHALF OF THE APPROPRIATIONS FOR THE NEW CENTERS FOR THE TRANSFER OF MANUFACTURING TECHNOLOGY PROGRAM OF THE NATIONAL BUREAU OF STANDARDS--APPROPRIATIONS WHICH ARE PART OF THE SUBCOMMITTEE'S 1989 BILL.

THE UNIVERSITY OF MISSOURI-ROLLA RANKS NINTH IN THE ENTIRE UNITED STATES IN THE NUMBER OF BACCALAUREATE ENGINEERS GRADUATED. OUR CAMPUS IS WIDELY RECOGNIZED FOR THE STRENGTH OF OUR ENGINEERING AND SCIENCE PROGRAMS INCLUDING THE AREA OF MANUFACTURING ENGINEERING. AMONG MY PROFESSIONAL ACTIVITIES AS AN ENGINEER AND AN EDUCATOR, I SERVE ON THE BOARD OF THE MISSOURI CORPORATION FOR SCIENCE AND TECHNOLOGY WHICH SEEKS TO FOSTER TECHNOLOGICALLY INTENSIVE ECONOMIC DEVELOPMENT IN OUR STATE.

MISSOURI IS ONE OF THE NATION'S LEADING MANUFACTURING STATES--WE RANK 16TH AMONG THE STATES IN THE VALUE OF MANUFACTURED GOODS SHIPPED AND 17TH IN THE NUMBER OF MANUFACTURING JOBS. THUS WE HAVE A VITAL INTEREST IN THE WELL-BEING OF THE MANUFACTURING SECTOR OF OUR ECONOMY.

I APPEAR BEFORE YOU TODAY TO URGE THIS SUBCOMMITTEE TO FUND $42 MILLION FOR CENTERS FOR THE TRANSFER OF MANUFACTURING TECHNOLOGY. IT IS IMPERATIVE TO THE FUTURE OF OUR ECONOMY THAT THE UNITED STATES REGAIN PREEMINENCE IN MANUFACTURING. THESE CENTERS FOR THE TRANSFER OF MANUFACTURING TECHNOLOGY ARE A VITAL AND ESSENTIAL COMPONENT TO THE NATION'S EFFORTS TO ACHIEVE THIS GOAL.

MANUFACTURING IS AND WILL REMAIN A MAJOR COMPONENT OF OUR ECONOMY. TODAY, THERE ARE NEARLY TWENTY MILLION MANUFACTURING WORKERS IN THE UNITED STATES, REPRESENTING ROUGHLY ONE OUT OF FIVE JOBS. THE BUREAU OF LABOR STATISTICS HAS PROJECTED THAT THIS LEVEL OF EMPLOYMENT IN MANUFACTURING WILL CONTINUE AND PERHAPS GROW SLIGHTLY THROUGH THE MIDDLE OF THE NEXT DECADE. EVEN IF, AS OTHERS HAVE PREDICTED, AUTOMATION WILL--INDEED, MUST--REDUCE THE NUMBER OF MANUFACTURING JOBS IN THE FUTURE, THERE WILL REMAIN MILLIONS OF MANUFACTURING WORKERS IN THIS COUNTRY AND WE MUST REMAIN COMPETITIVE IN MANUFACTURING IF WE ARE TO SUSTAIN THIS PIVOTAL PART OF OUR ECONOMY. BUT THE EVIDENCE ON AMERICAN MANUFACTURING COMPETITIVENESS IS NOT REASSURING. SINCE 1980 WHEN THE UNITED STATES HAD A SMALL POSITIVE BALANCE OF TRADE IN MANUFACTURING, LARGELY BECAUSE OF THE HIGH TECH PORTION OF THE INDUSTRY, OUR POSITION HAS DETERIORATED RAPIDLY.

IN 1986, OUR BALANCE OF TRADE IN MANUFACTURED GOODS WAS OVER $140 BILLION IN DEFICIT. THIS TREND CANNOT CONTINUE WITHOUT DISASTROUS CONSEQUENCES FOR OUR NATION'S ECONOMY AND SECURITY. OUR COMPETITORS ARE IMPROVING THEIR MANUFACTURING PRODUCTIVITY MORE RAPIDLY THAN THE UNITED STATES, THEY ARE INVESTING MORE IN MANUFACTURING RESEARCH AND DEVELOPMENT, AND THEY ARE MAKING BETTER USE OF THE NEW MANUFACTURING TECHNOLOGY THAT HAS BECOME AVAILABLE.

IT IS IMPORTANT TO RECOGNIZE THE DECISIVE ROLE THAT SMALL- TO MEDIUM-SIZED COMPANIES PLAY IN MANUFACTURING. FOR EXAMPLE, THERE ARE 7,400 MANUFACTURERS IN MISSOURI EMPLOYING 430,000 WORKERS. THUS, THE AVERAGE COMPANY EMPLOYS LESS THAN SIXTY PEOPLE. MANY OF THESE SMALL BUSINESSES SUPPLY OTHERS WHO ASSEMBLE PARTS TO FORM FINISHED PRODUCTS SUCH AS AUTOMOBILES, AIRPLANES, AND ELECTRONIC GOODS.

THE TYPICAL MANUFACTURER DOES NOT HAVE A RESEARCH AND DEVELOPMENT STAFF AND THEREFORE IS LIMITED IN ITS ABILITY TO KEEP ABREAST OF THE LATEST TECHNOLOGICAL DEVELOPMENTS. AND THE NEW AUTOMATION TECHNOLOGY, PARTICULARLY THE FLEXIBLE MANUFACTURING SYSTEMS, OFFERS THE GREATEST OPPORTUNITY IN SMALL- TO MEDIUM-SIZED COMPANIES WHERE THE EFFICIENT SCALE OF OPERATIONS INVOLVES AS FEW AS SIX MACHINES AND LESS THAN SIX WORKERS. THE KEYS ARE THE PROPER SELECTION OF EQUIPMENT AND THE COMPETENCE OF A SMALL GROUP OF WORKERS.

THIS IS WHERE THE CENTERS FOR THE TRANSFER OF MANUFACTURING TECHNOLOGY CAN PLAY A DECISIVE ROLE. THE TYPICAL SMALL MANUFACTURER DOES NOT HAVE THE PEOPLE OR THE RESOURCES TO DEVELOP THE TECHNOLOGY OR TO COME TO WASHINGTON TO THE NBS'S AUTOMATED MANUFACTURING RESEARCH FACILITY TO ASSESS THE TECHNOLOGY.

THE TECHNOLOGY, INCLUDING THE ORGANIZATIONAL AND MANAGEMENT CONCEPTS NEEDED TO EXPLOIT THE TECHNOLOGY, MUST BE TAKEN TO THE MANUFACTURERS IN EVERY REGION OF THE COUNTRY. WE MUST EXTEND A HELPING HAND, IN THE NATURE OF A PARTNERSHIP, TO SMALL- AND MEDIUM-SIZED MANUFACTURERS BY MAKING AVAILABLE EQUIPMENT, SOFTWARE, AND PERSONNEL TO ACCELERATE THE WISE APPLICATION OF THIS NEW TECHNOLOGY. IN THE ABSENCE OF SUCH A DELIBERATE AND WIDESPREAD EFFORT TO DEMONSTRATE AND TRANSFER THE NEW MANUFACTURING TECHNOLOGY, THE TRENDS OF THE PAST EIGHT YEARS WILL CONTINUE AND WE WILL ALL SUFFER THE CONSEQUENCES.

THERE IS YET ANOTHER REASON TO PURSUE THIS PROGRAM OF TECHNOLOGY TRANSFER WITH VIGOR. IT OFFERS GREAT HOPE FOR SMALL TOWN AMERICA. THE SMALL SCALE OF EFFICIENT OPERATION OF FLEXIBLE MANUFACTURING SYSTEMS, ALONG WITH MODERN COMMUNICATIONS AND TRANSPORTATION, OFFERS THE POSSIBILITY OF CREATING JOB OPPORTUNITIES THAT CAN REVITALIZE SMALL COMMUNITIES ALL OVER OUR COUNTRY.

IT IS ALTOGETHER POSSIBLE, INDEED IT MAY WELL BE DESIRABLE, TO BRING THESE MANUFACTURING PLANTS INTO SMALL TOWNS WHERE THE QUALITY OF LIFE AND THE WORK ETHIC ARE HIGH AND THE OVERALL COST OF OPERATION IS LOW. HOWEVER, TO CAPITALIZE ON THIS OPPORTUNITY, WE MUST FIND WAYS TO DISSEMINATE THE UNDERSTANDING OF THIS AUTOMATED MANUFACTURING TECHNOLOGY AND ITS APPLICATION. THE CENTERS FOR THE TRANSFER OF MANUFACTURING TECHNOLOGY COULD BE THE CATALYST FOR THIS EFFORT.

FOR THESE REASONS, I URGE THE SUBCOMMITTEE TO FUND THESE CENTERS. $42 MILLION WILL MAKE POSSIBLE A DOZEN SUCH CENTERS STRATEGICALLY POSITIONED AROUND THE UNITED STATES. WHILE A DOZEN CENTERS MAY NOT BE SUFFICIENT TO SERVE THE MORE THAN 300,000 MANUFACTURERS IN OUR COUNTRY, WE MUST ENHANCE OUR EFFORT NOW. WE CANNOT, IN MY VIEW, ACCEPT THE RISKS THAT DELAY INVITES. THE TRENDS ARE CLEAR AND THE CONGRESS MUST NOT HESITATE WITH HALF-HEARTED MEASURES.

THIS YEAR MARKS THE 126TH ANNIVERSARY OF THE LAND GRANT MOVEMENT AND THE FAMOUS MORRILL ACT OF 1862. MORE THAN ONE CENTURY AGO, THE 37TH CONGRESS SAW THE NEED TO BRING PRACTICAL KNOWLEDGE TO THE PEOPLE OF THE UNITED STATES AND ESTABLISHED THE GREAT LAND GRANT UNIVERSITIES OF OUR NATION.

THESE PEOPLE-SERVING INSTITUTIONS HAVE BECOME THE ENVY OF THE WORLD AND, AMONG OTHER THINGS, HAVE MADE AMERICAN AGRICULTURE THE MOST PRODUCTIVE ON THIS EARTH BY PROVIDING PRACTICAL KNOWLEDGE OF THE TECHNOLOGY OF FARMING. BY TAPPING THE SCIENTIFIC UNDERSTANDING OF OUR RESEARCHERS, THE ENERGY OF INDIVIDUAL FARMERS AND THE VALUES OF RURAL AMERICA, AMERICAN AGRICULTURE HAS BEEN THE PREEMINENT AMERICAN SMALL BUSINESS FOR NEARLY A CENTURY. I BELIEVE THE CENTERS FOR THE TRANSFER OF MANUFACTURING TECHNOLOGY HAVE THE CAPACITY TO CREATE ANOTHER AMERICAN SUCCESS STORY. BY EXTENDING PRACTICAL KNOWLEDGE ABOUT MANUFACTURING IN THE SERVICE OF PEOPLE, THESE CENTERS CAN PLAY AN IMPORTANT ROLE IN REVITALIZING MANUFACTURING IN AMERICA. IN THIS WAY THE 100TH CONGRESS CAN CONTINUE THE VISION AND LEGACY OF JUSTIN MORRILL AND HIS COLLEAGUES OF A CENTURY AGO. THE OPPORTUNITY IS CLEAR. MAY YOU HAVE THE WISDOM TO PURSUE IT WITH BOLDNESS.

## STATEMENT OF THE NATIONAL ASSOCIATION OF URBAN FLOOD MANAGEMENT AGENCIES

The National Association of Urban Flood Management Agencies urges the Senate Appropriations Subcommittee on Rural Development, Agriculture and Related Agencies to significantly increase the level of funding for the P.L. 566 Small Watershed Program in fiscal year 1989. Increasing funding for this essential, yet extremely underfunded program, is necessary to ensure that costly damage resulting form uncontrolled flooding is minimized to the greatest extent possible.

The National Association of Urban Flood Management Agencies (NAUFMA) is a broad based non-profit association comprised of state and local public agencies responsible for providing flood protection for communities around the nation.

The Soil Conservation Service's Small Watershed Program (P.L. 566) is a vital component of the resource arsenal available to NAUFMA member agencies to deal with the flood protection needs of their communities. However, funding for the SCS program has been drastically reduced over the past few years, seriously hampering the ability of local and state agencies to effectively control flooding in small watershed areas.

### Administration's Request

The level of funding requested by the Administration would virtually eliminate the program; a move Congress has not supported over the past several years. The Administration's position results from two and perhaps three erroneous arguments. The first assertion the Administration makes is that the services and facilities provided by the SCS Small Watershed Program are best performed by local sponsors and are within their capabilities. The second is that the facilities duplicate services of the Corps of Engineers.

In reality, SCS project sponsors are no more able to take on a multimillion dollar project by themselves than are the non-federal participants in the Corps and Reclamation projects. The basic authorizing legislation is also very clear as to which agency is responsible for which area in the water resources arena. Cooperation to avoid duplication is part of the program planning and day-to-day operations of these agencies, and has been practiced successfully for many years. These programs are complementary. The SCS programs concentrate on small upstream watersheds of 250,000 acres or less, with emphasis on watershed protection and flood protection purposes. The Corps and Bureau projects, on the other hand, deal with major drainage areas.

The third assertion made by the Administration is that SCS Small Watershed projects often provide added capacity to produce surplus commodities. This point is only partially true and will continually vary with changes in cropping patterns and land uses in the project areas. At any rate, as the actual funding data would suggest, Congress has not considered these arguments convincing and has continued to provide a maintenance level of funding for the USDA programs, although not nearly enough to meet the growing watershed needs of the nation.

### Program Adjustments

To respond to some of the criticisms of the SCS program, NAUFMA has been informed that the agency has adopted several changes that will improve the effectiveness and efficiency of its water resources activity. We feel the Subcommittee should be made aware of these positive program adjustments.

The recommended SCS program changes and adjustments include: (1) proposed new legislation to bring cost share rates in line with other agency programs (65% federal - 35% local), (2) increased efforts to eliminate unfeasible parts of authorized projects, (3) increasing emphasis on projects that improve water quality and reduce the effects of sedimentation and that focus on technical assistance, and (4) restricting the number and purposes of planning starts so as not to increase future unfunded commitments. (Note: the legislative initiative on cost-sharing apparently is still undergoing revision by the Administration, but should soon be transmitted to Congress).

## Projects Impacts

P.L. 566 projects provide a wide range of both economic and social benefits that the Subcommittee should consider in evaluating the significance of providing a higher funding level for this very important program.

Economic Benefits: P.L. 566 requires that all project plans contain a benefit-cost analysis. In July of 1987, the USDA Soil Conservation Service released a report titled, "Evaluation of the Watershed Protection and Flood Prevention Program", which presents an estimate of the economic benefits accruing in 1984 as a percentage of the original planned benefits for 58 of 60 sample projects completed in 1978. "According to the sample, adjusted estimated benefits accruing in 1984 exceeded the planned benefits by 34 percent overall." The report summarized the economic benefits of the projects sampled as follows: "Considering the distribution of benefits accruing in 1984, relative to planned benefits it can be deduced that about 90 percent of the completed projects have benefits accruing that are equal to or greater than the annualized costs."

The economic benefits of the program are impressive and easily quantified but in no case tell the whole story of the benefits of the Small Watershed Program.

Social Benefits: The Small Watershed Program provides a wide range of social benefits as well as economic benefits. Because social benefits--benefits which improve the quality of life in a community--are not so easily quantified it is difficult to assign a value which fits nicely into some mathematical formula. These benefits, however, are equally as important as the economic benefits described earlier and should be strongly considered by the Subcommittee in establishing a higher funding level for this program.

According to the SCS report, by reducing upstream flooding, small watershed projects help overcome the following risks to society:

- Threat of loss of life;
- Health hazards such as insect breeding pools, sewerage overflows, and chronic wet conditions that are particularly hazardous to the elderly and to children;
- Significant risk and inconvenience associated with damage to roads and bridges;
- Distruption of necessary services such as police and fire protection and use of emergency equipment;
- Pollution of drinking water; and
- Interruption of utilities

## Summary

Funding for the SCS Small Watershed Program has been drastically reduced over the past few years seriously jeopardizing the viability of the program. The P.L. 566 program provides a valuable resource tool for state and local public agencies to protect the public from costly flood related damages in small watershed areas. NAUFMA urges the Subcommittee to significantly increase the appropriation level for the SCS Small Watershed Program.

## STATEMENT OF RONALD KOKINDA, NATIONAL DEMOCRATIC POLICY COMMITTEE

### NDPC Calls for Agriculture Emergency Measures: Expanded U.S. Production, and Worldwide Marshall Plan

Thank you, Mr. Chairman, for the opportunity to testify on agricultural policy.

U.S. budget appropriations for agriculture in 1988 are to be made in the context of declining food supplies domestically and internationally, and in declining potential food production capacity. All talk of "Recovery" is either stupid rhetoric or crass propaganda, worse than even Hoover's Vice-president Davis saying, in 1930, "prosperity is just around the corner."

What is required is collaboration within Congress and between various government agencies, to develop and implement pro-production domestic and foreign agriculture programs. Guidelines are presented below, including the outline for an international "Marshall Plan," as proposed to the United States by French Agriculture Minister Francois Guillaume, and others.

Two related processes have intensified in recent years to create the crises hitting U.S. and foreign agriculture. Both domestic and international food reserve stocks have been deliberately, wrongly, propagandized and treated as "surpluses" to be eliminated, instead of being treated as actual needed food reserve supplies to be maintained and utilized for good. This has "rationalized" massive programs to eliminate herds, cropland, farms, and independent food processors and distributors, while facilitating the consolidation of farm commodity brokering, and processing in the hands of a very few food cartel companies.

Secondly, the buying power of U.S. households and foreign nations in need of food imports, has been drastically reduced compared with, for example, 1972, in terms of ability to meet minimum nutritional requirements. This drop in the U.S. standard of living, which our economic specialists estimate to be in the range of 30 to 40 percent, becomes devastatingly clear when we look at U.S. demographic trends. Assume for a moment, that two trends had continued from the mid-1960s. First, that the same percentage of households were families. And second, the same number of children per family, 2.57, which is not high.

Based on the continuation of these two trends from the 1960s, we should have 133 million children in the U.S. today. We have in fact 58 million, 17 years old or younger. I submit, Mr. Chairman, that this is devastating economic proof of decline in our standard of living.

Especially since 1982, and the period of the Mexican debt crisis, the policy of the United States has been to collaborate with private international financial and commodity cartel interests to compel less developed nations to export food to the U.S.--in order to earn foreign exchange, thus undermining U.S. farmers, and at the same time creating intensified malnutrition in the exporting nation. By 1987, this process showed up even in the "official" monthly trade balances of the United States, in which agriculture imports exceeded U.S. exports in at least two months. Meantime, U.S. grain exports were sold to the Soviet Union at sweetheart rates, for reasons of political propitiation.

Under the combined pressures of this situation, there has been a massive shutdown of the U.S. independent family-run farm. Instead of federal programs counteracting the shutdown process, they have served food cartel interests by implementing food scarcity programs, offering inducements to farmers to cease operations, for example, the dairy herd termination program, the annual land set-asides, and the conservation reserve cropland lock-up. The accompanying foreign policy has been intensifying food trade war.

The direct beneficiaries and backers of this perspective have been the small club of interntaionl food brokerage comapnies--Cargill, Louis Dreyfus, Bunge, Andre/Garnac, Continental, Nestle, Unilever, Archer Daniels Midland/Toepfer, and so forth. These companies have positioned themselves to take advantage of food scarcity, and to dominate major food flows, both internationally and inside the United States. The most obvious proponent of these interests was Daniel Amstutz, a 25 year Cargill executive, who during his time as number two man at the USDA from 1983 to 1987, initiated such cartel-serving policies as the export enhancement program, all of which should be scrapped or altered in order to benefit the farmer, the consumer, and U.S. national interests.

The situation in the U.S. beef supply dramatizes the threat. As of the first of this year the national cattle herd numbers dropped to 99 million head, the lowest since 1961. Since just 1982, the cattle herd has dropped 16 million head, as meat supplies were imported into the U.S. under the mandate of the Interntional Monetary Fund and food cartel directives. Moreover, nearly 40 percent of the decline in beef animal numbers have been in the breeding herd, which has fallen from 39 million cows in 1982 to 33 million today. Therefore the 40 million beef calves born in 1987 is the smallest since 1960. You will still observe fully stocked meat cases in the grocery store, because fewer households can afford to buy beef. Beef consumption is estimated to have dropped 16 percent per capita since 1976.

At the same time, ranchers have been unable to stay in operation, and independent feedlot and slaughterhouses have shut down in mass numbers. Only the three major packers -- IBP (Armand Hammer), Excell (Cargill), and Con-Agra (various brands) will account for 70 percent of all the steers and heifers slaughtered in the United States this year.

Guidelines required to reverse both the decline in food output, and the monopoly control of supply, are presented below. But first it is necessary to review the international situation. After the 1986 come-and-go publicity about the famine in Africa, world attention has been turned away, while the problem has worsened. Because of mutli-year drought, in combination with lack of emergency treatment measures, locust swarms have now developed over 1987 and 1988, that have destroyed millions of acres of cropland and pasturage. The locust type--Schistocerca gregaria (Pilgrim locust), now threatens to move into Europe and southwest Asia, threatening fully 500 million people, unless the plague is stopped.

Under these circumstances, massive food aid is required. In 1987, only 10 million tons of foodstuffs aid was shipped worldwide, when that amount alone is needed to be mobilized for Africa. Restoring health and disease-resistance is particularly urgent in light of the spread of AIDS, and the recurrence of once-conquered killer diseases--cholera, malaria, etc.

In reality the fabled food surpluses don't exist, for example, the European Community grain surplus. Even the EC's own published data shows that the EC warehouses had at the turn of the year about 12 million tons of grain. With an annual consumption of 155 million tons, these stocks would only supply European consumption for about 28 days.

There are supposedly 400 million tons of grain "surplus" worldwide, but measured against the need for massive diet improvements, and maintenance of food reserve stocks, there is no "surplus" at all.

In recognition of these factors, the French Agriculture Minister Francois Guillaume, has been promoting the idea of a worldwide agriculture "Marshall Plan." The key five points of the plan are as follows. The concept was presented in person in 1987 by Guillaume to President Reagan, who under the advice of his Cabinet, chose to ignore the entire crisis in favor of myths of "Recovery." Under the current economic emergency, initiation of action on the Marshall Plan idea should properly come from Congress.

### The Guillaume Marshall Plan in Five Points

1. International agriculture development aid can be financed by reorganizing the major agriculture markets and implementing a policy of "fair prices," which can guarantee export income for Third World Nations. The grain market is well suited to this because of its worldwide importance and the small number of exporters. Regulation should extend to vital products from developing countries, such as coffee or cacao.

2. The five exporting regions (USA, EEC, Canada, Australia and Argentina), having formed a kind of food "OPEC," must agree on a minimum selling price for their grain, and this price should be at least equal to the cost price of the most competitive country.

3. These sales at a fair price would free up the large additional financial means needed to meet the needs of developing countries. For example. a recent sale of grain to the Soviet Union from France, was agreed on at a price of 450 francs per ton, whereas the average cost price is around 1,250 francs per ton.

4. These plans could be implemented through a set Board of Governors who could arrange Enforcement Conventions with existing international agencies.

5. According to expert estimates, billions of dollars could be freed up annualy from this plan, which could be used for food relief, and also agriculture development operations, delivery of storage equipment, development of distribution systems, and technical training, etc.

### Guidelines for Restoring U.S. Farm Output Potential

1. Freeze and reschedule agriculture debt, along principles similar to the recent Farmers Home Administration action, in order to keep farms operating until the crisis period abates. Stay all farm foreclosures for a set period of time.

2. Provide low interest (2 to 4 percent) loans from the Treasury Department, through the local agriculture credit infrastructure (commerical banks, FmHA and Farm Credit System) for both farm operating credit and capital improvement purposes. This will have a ripple effect throughout the farm supply network, now attenuated to the point of disaster.

3. Initiate parity-related pricing for farm commodities, in the context of revitalizing industrial and infrastructure acitivities (defense, space, reesearch and development for heavy industry and advanced energy), that will restore the economic base of the nation, and therefore restore household purchasing power and the tax base.

4. Take anti-trust actions to eliminate the monopoly-domination of basic food supplies by the few cartel companies, beginning with IBP, Cargill, Nestle and others to be designated.

5. Review and revamp the various conservation programs to end the shut down of essential farm functions done in the false name of preservation of the environment. Restore the role of the land-grant extension system to provide science and technology to farmers who will decide how to make soil and other conservation improvements.

## STATEMENT OF ROBERT A. RAPOZA, LEGISLATIVE DIRECTOR, NATIONAL RURAL HOUSING COALITION

Mr. Chairman, my name is Robert A. Rapoza and I am the legislative director for the National Rural Housing Coalition (NRHC). NRHC is a national membership organization which lobbies on behalf of low income rural housing and development programs. We have testified before the subcommittee before and appreciate the opportunity to submit this statement for the record.

The President's Fiscal Year 1989 budget will bring to an end federal rural housing programs administered by the Farmers Home Administration (FmHA). The spending plan also proposes, under the guise of a rural development initiative, a 30% reduction in funding for rural water, sewer and community facility programs.

FmHA administers loans, grants and related assistance for housing and community facilities for low income rural people and their communities. The President proposes to replace some $2 billion in rural housing lending and related assistance with about $375 million in vouchers. The budget also proposes a $1.75 billion rural housing loan sale.

Both rural housing and community facilities have been greatly reduced in previous fiscal years. Rural housing lending was reduced by about 40% in FY '86 alone. Rural communities facilities funding is less than one half that of fiscal year 1981.

Approval of the FY '89 proposal will result in the termination of the FmHA housing program. The President has proposed this termination despite recently signing a two year reauthorization of federal housing programs. The Housing and Community Development Act of 1987 extended rural housing programs at a level of about $2.1 billion through FY '89. This level is about $200 million less then the FY '88 continuing resolution.

Slated for elimination are programs for low income families living in bad housing: Loans for home ownership, and rental housing for families and the elderly, self help technical assistance preservation grants, low income repair loans and grants for the elderly, farm labor loans and grants and rural rental assistance. All were reauthorized in the recently enacted housing legislation.

The Administration proposes 27,500 housing vouchers for rural areas in FY '88. However, the Administration also proposes an end to the rental assistance program which aids very low income households living in rural rental housing. In FY '89 some 11,400 rental assistance contracts will expire. FmHA will be forced to use close to 50% of the vouchers available to continue existing commitments. As a result, the number of new households receiving federal rural housing assistance will drop from about 70,000 in FY '88 to about 15,000 if the administration's plan is approved.

We recommend continuation of the current rural housing programs at the level authorized in the Housing and Community Development Act of 1987. This would provide some $1.114 billion for Section 502 loans and $675 million for rural rental housing loans authorized in Section 515.

It is important to note the already substantial reductions that have been made in section 502. As late as 1985 the program was funded at $2.3 billion. The Fiscal '86 budget cut the program substantially and the 1987 Housing Act reduced the authorization below the appropriated level of $1.266 billion.

The program has been criticized in the past because not all funds were spent particularly in the very low income allocation. Thus far (March 31) spending is up and it appears that several states will run out of section 502 funds.

In addition, we recommend full funding for programs for very low income households self help housing technical assistance grants, rural housing preservation grants, loans and grants for the elderly and loans and grants for farmworker housing. These programs serve the poorest of the poor.

For example, families participating in the self help housing program have incomes well below the poverty line and self help housing units cost on the average about $10,000 less than contract built section 502 houses, well below the cost of technical assistance grants which is about $5,000 per unit. Most self help programs serve exclusively very low income borrowers (incomes at or below 50% of area median). Continued funding of the self help housing program will help to ensure that, as required by law, 40% of section 502 funds go to very low income households.

Rural housing preservation grants are targeted to very low income families living in substandard housing. In 1988 some 4,500 families will have their homes repaired at a cost of about $4,400 per unit. Demand for this program continues to be high. In FY '87 FmHA received over 300 applications and provided funding to only about one-third that number.

Equally important is funding for rural rental assistance. In order to provide decent rental housing for very low households rental assistance is necessary. Even with a 1% interest rate charged under section 515, typical rents are in excess of $200 per month. A household with income of $8,500 per year will either be forced too far in excess of 30% of income for housing or continue to live in substandard housing.

An appropriation of $275 million will provide sufficient funds for the renewal of existing rental assistance contracts, estimated to be 11,400 units and provide for about 11,000 of newly constructed rental housing.

The 1987 Housing Act also provides a series of incentives to owners in return for which they agree to continue use for low income households for an additional 20 years. It is my understanding that Farmers Home Administration (FmHA) is about to issue regulations to implement these provisions.

In the event that owner is not willing to accept an incentive, the owner is allowed to prepay the loan, provided that non-profit and public organizations are first offered an opportunity to purchase the project at the fair market value.

The '87 Housing Act amended the Section 515 program to permit use of funds for the purchase of a project. Appropriation action is needed to facilitate the purchase of a project by a non-profit or public body. Subject to approval in appropriation acts, FmHA may:

- use Section 575 funds to finance the purchase of a project by a non-profit or public body;

- provide up to appropriation acts, $26 million in incremental rental assistance funds to be used to hold tenant rents harmless;

- provide financial assistance, in the form of debt forgiveness, to hold tenant rents harmless; and

- make an advance to a nonprofit or public body to facilitate the sale. Such advances will be for necessary technical services. We recommend that such advances be limited to 10,000 per project.

There are over 100,000 units of Section 515 housing that will be regulated under the preservation provisions of the 1987 Housing Act. Prior to passage of the moratorium, over 1,000 units were lost in California alone.

While the incentive package is a good tool for encouraging owners to retain these projects for low income use, there are some who will wish to sell or test the right of first refusal provisions of the law. Because of this, we recommend that the non-profit/public body buyout provisions of the 1987 Housing Act be fully funded and that legislative language necessary to their implementation be provided in the Fiscal '89 Rural Development, Agriculture and Related Agencies appropriation bill.

Mr. Chairman, we appreciate your past support of the rural housing program and look forward to your help in the future.

## STATEMENT OF DAVID A. WIRTH, SENIOR ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL

I am David A. Wirth, Senior Attorney with the Natural Resources Defense Council (NRDC). I am testifying today on behalf of NRDC, the Sierra Club, and the National Wildlife Federation (NWF). These three organizations have a combined membership of more than 5 million individuals distributed through every state. I am also representing a coalition of environmental, academic, and economic interests from Central America.

Mr. Chairman, I expect to be one of the few witnesses today who can suggest ways for this Subcommittee to save money rather than to spend it. I am here to discuss severe environmental risks in two wasteful and unnecessary projects of the Department of Agriculture's Animal and Plant Health Inspection Service (APHIS). The two projects are MOSCAMED, a plan to eliminate the Mediterranean fruitfly (medfly) from Guatemala, and CAPMED, a similar program covering all of Central America.

The environmental risks of the MOSCAMED project, which are undoubtedly substantial, are the subject of an environmental assessment currently being prepared by the Agency for International Development (A.I.D.) pursuant to a Congressional mandate. That study, which is due to be completed by June 5, will also address the effects of the project on the economy of Guatemala and the cost effectiveness of the program. The results of the MOSCAMED study will provide a strong signal as to the wisdom of proceeding with the larger CAPMED project.

Because of grave concern about the environmental risks of these projects, the Appropriations Committees of both houses of the Congress suspended these projects last year pending completion of the A.I.D. study. NRDC, the Sierra Club, and NWF strongly believe that it would be premature for this Subcommittee to appropriate one penny for these undertakings until their proponents -- USDA, APHIS, and U.S. growers -- can demonstrate that these projects satisfy each of three tests: (1) that they will have no adverse impacts on the environment of the countries concerned; (2) that they will benefit the economies of the region; and (3) that they are cost-effective from the point of view of benefits within the United States.

The information already available about these projects suggests that they do not satisfy any of these tests. We are convinced that the A.I.D. environmental assessment will confirm that conclusion. On behalf of the United States and Central American organizations I am representing, I strongly urge this Subcommittee not to finance these projects, but to terminate them altogether.

MOSCAMED

Medfly has already been eradicated from Mexico using United States funds, and APHIS is maintaining a "barrier" in Guatemala to prevent reinfestation. The next phase of MOSCAMED would extend eradication efforts to other areas of Guatemala in part with APHIS funds and in part with P.L. 480 "Food for Peace" local currencies, which USDA administers jointly with A.I.D. The project as currently envisioned would cost approximately $30 million over a 4-year period and would involve extensive reliance on the pesticides malathion and methyl bromide. MOSCAMED and CAPMED anticipate the widespread and indiscriminate aerial spraying of a malathion-laced bait. The fumigant methyl bromide would be used to treat produce moving from a fly-infested area to a fly-free zone.

Malathion is a broad-spectrum insecticide which could have adverse effects on honeybees, fish, and shellfish of commercial importance in the region. It could also harm other potentially beneficial insect species, such as pollinators of economically important crops like cardamom, and could substantially reduce biodiversity and deplete endangered species in the area.

Public protests forced APHIS and the Government of Guatemala to abandon the use of ethylene dibromide (EDB) -- a deadly cancer-causing fumigant that has been banned for use in the United States -- in favor of methyl bromide. The substitution of methyl bromide, which also presents extreme hazards to human health, can hardly be considered an improvement over EDB. The Environmental Protection Agency describes methyl bromide as "highly acutely toxic," and effects on the kidneys and lungs of exposed workers are well documented. There are also indications that methyl bromide causes cancer and birth defects. Moreover, there are numerous data gaps for this pesticide that make informed decisions about its use impossible. This is particularly true if the pesticide is proposed for use in Central America, where precautions to reduce health and environmental risks are likely to be fewer than in the United States.

The environmental consequences of MOSCAMED have never been adequately analyzed. The A.I.D. study will be the first attempt to project the impact of the project on nontarget species. Although APHIS has produced its own environmental analysis and has asserted that the environmental effects of the project will be minimal, no adequate species inventory has ever been compiled. For this reason, this Subcommittee should send a clear message to APHIS that under no circumstances may the project proceed before the Subcommittee has received the document and had an adequate opportunity to review it.

Moreover, there is absolutely no urgency to proceeding with either MOSCAMED or CAPMED now or in the foreseeable future. APHIS's 1985 "Technical Report" submitted to this Subcommittee recognized that the risk of a U.S. infestation from all of Central America is less than one-tenth that posed by produce shipped to the mainland from Hawaii. Significantly, a project proposed for Hawaii that was virtually identical in design to the proposed MOSCAMED and CAPMED programs was halted on environmental grounds.

If anything, Central America is an even less compelling candidate for eradication than Hawaii. No one believes that medfly will penetrate the continental United States by crossing the Mexican border. In the months that the project has been suspended, there have been no major outbreaks either in the United States or in Central America attributable to medflies crossing the barrier. Even if MOSCAMED goes forward, there will still be periodic outbreaks in the United States caused by medflies from other areas.

There are also indications that MOSCAMED will hurt the economy of Guatemala. One of the justifications given by APHIS for the project is that it will allow increased exports of agricultural commodities such as tomatoes, peppers, and eggplants to the United States, which now has a quarantine in effect because of the medfly risk. The benefits from these increased exports are entirely speculative, while the risks to existing export-earning agricultural crops are quite concrete. APHIS's reasoning bears a startling similarity to that of the army officer who in 1968 argued that a Vietnamese village had to be destroyed in order to save it.

There is strong evidence that the project will adversely affect coffee, which accounts for one-third of the Guatemala's export revenues. Coffee growers have been the most vocal group opposed to the program to date because of the outbreaks of other pests that have occurred after spraying. Appended to this statement as Attachment "A" is an advertisement from the

Guatemala City newspaper Prensa Libre of June 17, 1987 in which the Asociacion de Caficultores Unidos -- one of a large number of organizations of coffee growers protesting the project -- described MOSCAMED as "an immediate act of destruction for the health, the economy, the ecology, and the production of our country." There is also evidence that yields of cardamom will be reduced when insect pollinators crucial to this important commodity perish after spraying.

A consortium of 10 organizations representing environmentalists, universities, and coffee growers in Guatemala is opposing this project. As a result of a public meeting about MOSCAMED held in Guatemala City on February 18, NRDC has been inundated with a torrent of demands from Guatemala and Costa Rica to terminate this project. Copies of representative communications from Defensores de la Naturaleza (Defenders of Nature) and the Universidad del Valle de Guatemala are appended as Attachments "B" and "C," respectively.

I am here today representing NRDC, the Sierra Club, NWF and this coalition of Central American organizations to urge this Subcommittee to terminate the MOSCAMED project pending the development of environmentally benign eradication methods. Medfly can be contained indefinitely with no loss to U.S. agriculture until acceptable alternatives to malathion and methyl bromide become available. Indeed, APHIS is now proceeding with tests of boric acid, which is one promising alternative to malathion. While there is no guarantee that boric acid or any other alternative will be environmentally or technologically suitable, the dangers of proceeding with this project far outweigh the minimal risks associated with delay.

## CAPMED

CAPMED would push the barrier currently in Guatemala to the Darien Gap in Panama at an estimated cost of $350 million over a 9-year period. Although other countries may contribute to the project, with the United Nations Food and Agriculture Organization playing a coordinating role, the bulk of CAPMED's massive cost -- nearly half of which would go for pesticide purchases -- would be shouldered by the United States.

Besides involving environmental and economic risks that are virtually identical to the MOSCAMED project, CAPMED is an even more foolhardy venture than the Guatemala program. With the political situation in the key countries of Panama, Nicaragua, El Salvador, and Honduras in grave disarray, there is virtually no hope of getting CAPMED off the ground. Indeed, the mere thought of sending low-flying planes into some of these areas is patently absurd.

CAPMED is plainly a waste of the taxpayers' money. In its 1985 "Technical Report" submitted to this Subcommittee, APHIS prepared a cost-benefit analysis which concluded that "[b]enefits under the most optimistic assumptions do not outweigh costs." If anything, that analysis understated the costs to the American taxpayer of this overblown, grandiose, and unnecessary project and overemphasized the prospects for an even minimally effective eradication program.

In nearly two years of work on this project, I have yet to hear any of the private interests supporting CAPMED or MOSCAMED suggest that these projects are sufficiently cost-effective to justify the investment of their own resources. However, those same special interests are encouraging the expenditure of public funds for their own benefit on a project that has few if any benefits to the overwhelming majority of Americans.

The World Bank in September 1986, citing a laundry list of environmental and technical defects, rejected a request to play a key role in implementing CAPMED. NRDC, the Sierra Club, and NWF believe that the World Bank made a wise decision, and we urge this Subcommittee to follow the Bank's lead by terminating the plainly ridiculous CAPMED project altogether.

## CONCLUSION

Mr. Chairman, NRDC, the Sierra Club, NWF, and the Central American interests I represent today believe that the information already available about MOSCAMED and CAPMED compels termination of these projects pending the development of environmentally acceptable alternatives to malathion and methyl bromide. We urge this Subcommittee to demand that APHIS and A.I.D. justify these projects according to strict environmental and economic standards in light of the findings of the A.I.D. environmental assessment.

[ATTACHMENT A]

ASSOCIATION OF UNITED COFFEE GROWERS

TO: GOVERNMENT AUTHORITIES
INTEGRAL HUMAN RIGHTS COMMISSION
INTEGRAL COMMISSION ON THE ENVIRONMENT
PRODUCTIVE SECTORS OF THE COUNTRY
PUBLIC OPINION

We are sharing our concern against the intense application of chemicals and insecticides which the MOSCAMED PROGRAM is effecting through spraying carried out by aircraft. Noxious effects to the nation's agriculture are causing lower production of coffee, cardamon, cocoa, bee's honey, etc...

Ecological sanctuaries have been violated in the NORTH and WEST of the country, thus increasing harm to agriculture and in apiculture (Fauna), such harm being the result of a proliferation of plagues and diseases that attack existing plantations and furthermore killing bees and other insects that contribute to the pollinization of cultivated crops.

WE ARE SEEKING CANCELLATION OF THE DISPERSION AND SPRAYING BY AIRCRAFT in order to avoid ecological disasters such as those that have occurred in southern Mexico. WE ARE ASSIGNING RESPONSIBILITY to the national and international agencies involved in this program for altering the national ecology, in the manner in which we indicated earlier, and for causing poisoning of people, animals, food crops and sources of water. This is evidenced by the diarrhea and gastrointestinal disorders, and other health changes that are occurring to the habitants of these regions and whose origin is supposedly unknown, though they happen to coincide with the initiation of spraying with aircraft by MOSCAMED. These health disorders can also affect the urban populations that consume products from the affected areas.

WE ARE ASSIGNING ECONOMIC RESPONSIBILITY to the organizations involved in this program and we are alerting the GOVERNMENT OF THE REPUBLIC to the diminishment of the agricultural crops of these regions, especially of exportable products, all of which will result in a greater impoverishment of the population and a reduced quantity of foreign exchange for the country.

Other techniques of controlling the Mediterranean fruit fly exist that avoid the harm and the effects mentioned above. Because of this, AUTHORITIES IN THE AGRICULTURE MINISTRY SHOULD CHANGE THEIR PRESENT INDIFFERENT ATTITUDE TO THIS SERIOUS NATIONAL PROBLEM and take a positive attitude and not remain dependent on the needs of international agencies. The principle reason for this change is that THE MOSCAMED PROGRAM in Guatemala is annually assigned millions of quetzales from the national budget for its execution.

IN CONCLUSION: THE MOSCAMED PROGRAM as it has been managed is an Immediate Act of Destruction for the health, the economy, the ecology, and the production of our country.

[ATTACHMENT B]

February 29, 1988

IICA
1a. Ave. 8-00 Zona 9
Guatemala

Dear Sirs:

As a response to your request for input in the process of the environmental impact study related to the MOSCAMED program in Guatemala, we are presenting the following questions and concerns to be addressed in the study:

1. Has a full scale analisis been conducted in the areas of Guatemala and/or Mexico where malathion spraying has been done to evaluate the environmental impact of that methodology? (Not just including the reduction in the medfly, but considering the population changes in other inspect species and the resulting impact on productivity of crops pollinated by non target species as well.) If not, why not?

2. Will a full scale follow-up analysis be conducted of the environmental impacts of the MOSCAMED program if that program is eventually approved for use in Guatemala?

3. How has the program affected crop productivity of non-fruit crops in the sprayed area? Has the loss of beneficial insects affected the pollinization of local non-fruit crops, and to what degree? What are those effects in common consumer crops such as corn and beans?

4. We have heard reports of increased plague erruptions after spraying malathion in coffee plantations and in cardamomo fields. It is commonly felt that the decrease in beneficial insects and the upset in the natural ecological balance in those areas has caused this occurrrance. What studies does MOSCAMED have concerning the side effects of their program in crops such as cardamomo and other products that do not consider the medfly to be an economically significant pest?

5. As it is difficult to evaluate a program that does not state specifically when and where the use of chemicals will be employed, we request information as to exactly where the aerial malathion spraying will take place and during which months of the year.

6. Will aerial spraying occur over densely wooded areas that do not fall under the legal protective status of national parks or reserves? (Example: the Sierra de las Minas)

7. Have follow-up evaluations been done on the spraying efforts done in Mexico to see what longer term ecological impact has occurred? If so, what are the general conclusions of that study?

8. What are the possibilities of seriously reducing the populations of other non-target insect species as a

result of this program? In the case of serious reductions in populations of non-target beneficial insect species, how long would it take for the populations of those species to restablish themselves to their normal levels again?

9. What are the beneficial insects found in Guatemala that may be affected by this program? Which crops depend on insect pollinization in Guatemala? What is the relative importance of those crops compared to the importance of the crops that will benefit from the MOSCAMED program on a national level, according to current markets?

10. Will aerial spraying occur over populated areas such as villages?

11. Have there been reports of increased health problems in the areas where spraying has been done in Guatemala? To what are those health concerns attributed?

12. Will local communities be advised before aerial spraying is done in their area? By what means of communication?

13. What is the acceptance level of the program among the local communities? Among the scientific community? Among the agricultural community? What are their major concerns? How does the MOSCAMED program address those concerns?

14. What is the actual feasibility of completely erradicating the Medfly if some areas, due to political or ecological concerns, can not be fully treated with malathion?

15. How will the use of malathion affect natural biological control species such as native amphibians, insect predators, insect eating birds and reptiles? What are the short term, intermediate and long term affects of the program on those species?

16. What is the feasibility of limiting the project area to include only those zones where there is high economic importance for fruit production, instead of focusing on erradication throughout the nation?

17. How do the climate differences between the various regions of Guatemala affect the effectiveness of the proposed control techniques and their immediate, short term and long term environmental impacts?

18. How close will spraying be done to waterways? What effects will the runoff have from sprayed areas on adjacent bodies of water?

19. Will runoff in steep slopes such as those surrounding Lake Atitlan affect the insect populations in that body of water? Will it affect the fish populations? Understanding that the local populations surrounding lake Atitlan depend heavily on fishing for their daily survival, and that they frequently use insect larvae, such as dragonfly larvae, for their bait, how will the

proposed chemical treatment affect the fisheries of that area, and for how long will that effect occur?

20. We have been informed that there exists a far greater chance of a Medfly invasion in the United States originating from fruits imported from Hawaii, than from those imported from Guatemala. Yet the MOSCAMED program was rejected in Hawaii. On what grounds was that program rejected? Do the same arguements have relevance in Guatemala or not?

We thank you for offering us the opportunity to participate in this very important process, and expect to see these concerns addressed as part of your environmental impact study of the proposed MOSCAMED program.

Sincerely,

Madelynn Arana

Madelynn Arana
DEFENSORES DE LA NATURALEZA

[ATTACHMENT C]

## MOSCAMED PROGRAM

### Comments an Environmental Impact Study

1. Insect Pollinators, particularly native bees.

In June and July, Dr. Michael Dix and Margaret Dix, faculty members of the Biology Department, and several students from this institution informed the MOSCAMED office in Guatemala City of observations made while doing field work at Finca El Volcán, Alta Verapaz. We had compared 1980, 1981 and 1986 data from systematic collections of Euglossini, Bombini, and *Trigona* bees, all important pollinators of cardamon, local crop plants and many plant species found in the University's biological reserve area above the finca, and found an alarming decrease in both numbers and diversity of bees collected. One undescribed species of *Euglossa* had disappeared from the biological reserve. The number of pollinator visits decreased 78%. We also found a 77% reduction in pollination of the cardamon crop. Apparently this report has been completely ignored by the MOSCAMED.

Most bees have a long life cycle compared to that of *Ceratitis* and are unable to rebuild populations between sprayings.

We would also suggest that the possibility of the protein bait (not the pheromone) being attractive to Hymenoptera be examined, No such evaluation has been carried out.

We believe the issue of damage to insect pollinators in general, not only honey bees, must be more closely examined and assessed.

2. Imbalance of natural predators and parasitoids

There is serious danger of loss of natural controls for coffee pests, such as leaf-miners, which are currently well controlled by parasitoids.

Many household crops are not sprayed and successful harvests depend on maintaining a natural balance between predator and pest. Wholesale spraying could upset this natural balance.

## 3. Endangered species

The impact statement prepared by APHIS is seriously deficient in its discussion of effects on endangered species. It overlooks all Appendix II species which may be severely affected through harm to their native pollinators. All Orchidaceae and Cactaceae are included in Appendix II. Most of these are bee-pollinated and could suffer severe decline with a drastic reduction in number of pollinators and, especially, in pollinator species diversity. Many orchids, for instance, have co-evolved with their pollinator and may be pollinated by only one or two species.

Among the Appendix I, species overlooked are *Lycaste virginalis alba*, the Guatemalan National Flower, and *Cattleya Skinneri* whose entire ranges in Guatemala are within the proposed spraying area.

## 4. Effects on Local Wildlife Species

Studies have not been carried out on the sensitivity of Guatemalan wildlife to malathion. Two species of deer, tapirs and peccaries are found within the proposed spraying areas. The Guatemalan quetzal also inhabits mountainous areas directly abutting on the coffee plantations.

## 5. Local endemic populations

In Guatemala there is a high level of local endemism. The spray program will affect areas set aside as biological reserves which are not all included in the preliminary list in the APHIS statement. Moreover, it will have an effect on small localized populations which have been poorly studied.

## 6. Malaria vectors

In Guatemala, mosquito vectors of malaria in Izabal, Quiché and Petén regions are not malathion resistant. Izabal and Quiché form part of the area which the program proposes to spray. Thus the MOSCAMED program will induce resistance to malathion into this vector population increasing difficulties for malaria control.

7. Aquatic resources

We question whether a 100 Ft. barrier on either side of water sources would be effective or even feasible. Most coffee plantations have small streams, which collect run-off water, and which cannot be avoided if adequate spraying of coffee is to be done.

No research has been done in Guatemala, or areas of similar climate, which could be used to extrapolate potential direct or indirect effects on aquatic invertebrates and fish populations. Fish represents a major protein source in many of the rural areas of Guatemala.

The impact statement should also consider techniques for avoiding damage to aquaculture operations.

8. Potential economic benefits to coffee crops

Inadequate research has been conducted in Guatemala on the potential economic benefits of the MOSCAMED Program to the coffee crops. Farmers are, in general, sceptical to the idea that the Mediterranean fruit fly actually causes them appreciable damage.

9. Comparisons of quantities of pesticides currently used in Guatemalan agriculture, with proposed MOSCAMED Program.

In general, coffee farmers use pesticide spraringly and for restricted periods to control coffee "broca", Hypothenemus hampei. This is in contrast to the types of spraying program used, for instance, in cotton plantations.

10. Foreign Assistance Act

The proposal is in direct violation of the Foreign Assistance Act in that it endangers wildlife species, their critical habitats, has already harmed protected areas and had adverse effects on biological diversity. It also directly violates the Guatemalan Ley del Medio Ambiente which requires an environmental impact study before permitting use of pesticides which may damage the environment or wildlife. In previous experience with the program there have been lapses in monitoring correct use of malathion. Unless a better control at the local application level can be achieved, problems will continue.

## LETTER FROM SUZANNE M. PETERSEN, ASSISTANT TO THE DIRECTOR, NEW YORK UNIVERSITY

The Honorable Quentin N. Burdick
Chairman, Sub-Committee on
Agriculture, Rural Development
and Related Agencies
Committee on Appropriations
140 Dirksen Senate Office Building
Washington, DC 20510

April 27, 1988

Dear Senator Burdick:

We are pleased to submit the enclosed Proposal for Economic Evaluation of the Use of Biomass for Energy in the U.S. Over the Next Several Decades.

The proposed study will clarify issues surrounding the economic viability of the conversion of biomass to energy employing the combined efforts of the Institute for Economic Analysis, the American Society of Mechanical Engineers, the American Society of Agricultural Engineers, analysts at the Department of Agriculture, and the Farm and Industrial Equipment Institute. It will open the door to a practical understanding and advancement of the process of technological change in the entire agricultural /industrial complex which can provide a critically important basis for the development of public and private measures to increase the competitiveness of the economy.

We request that this proposal be included in the record of public hearings held by the Sub-Committee on Agriculture, World Development and Related Agencies.

Sincerely,

Suzanne M. Petersen
Assistant to the Director

### Proposal for Economic Evaluation of the Use of Biomass for Energy in the U.S. Over the Next Several Decades

Objective: Interest in the conversion of biomass to energy has waxed and waned over the years in response to such factors as the availability and cost of petroleum, finances and export prospects of American farmers, and the level of concern about pollution attributable to the combustion of hydrocarbons. Confusion about the economic viability of biomass has been compounded by contradictory results from numerous studies each looking at only one aspect of a highly inter-related set of issues and often reflecting the special interests of one of a large number of concerned actors. The proposed study will clarify these issues through a systematic identification and quantitative description of the technical prospects and a comprehensive assessment of the costs and other economic implications corresponding to alternative biomass scenarios. This study will take place over a three-year period, and the outcome will be a definitive report on the subject.

Methodology: The analysis will be carried out using a dynamic input-output model of the interactions among all the industrial sectors comprising the U.S. economy. The existing technical input-output database will be expanded to include significant detail on the production and conversion of biomass and on the technical aspects of its use now and projections about the prospects over the next two decades. Alternative assumptions about the scope of use would range from on-farm conversion of biomass to assure energy independence, through co-generation in food processing, to larger-scale substitution for fossil fuels.

Staff: Faye Duchin, director of the Institute for Economic Analysis at New York University, and Wassily Leontief, Nobel Laureate and creator of input-output economics, will be responsible for the conduct of this study which will build on their work of the past ten years. The American Society of Mechanical Engineers, the American Society of Agricultural Engineers, analysts at the Department of Agriculture, the Farm and Industrial Equipment Institute, and several key private sector and university experts in the individual technologies have agreed to collaborate in the quantification of technical data. Their willingness to participate reflects the conviction that the analysis of this set of questions can be undertaken only within a framework like that proposed for this project.

Cost: The study can be accomplished on a total budget of $1,063,437. A rough breakdown is as follows:

| | Year 1 | Year 2 | Year 3 | Total |
|---|---|---|---|---|
| Salaries/Fringe Benefits | $180,757 | $191,603 | $203,099 | $575,459 |
| Other Expenses (Computer Usage, Equipment & Supplies, etc.) | 42,275 | 43,966 | 45,725 | 131,966 |
| Indirect Expense (51%) | 108,973 | 120,140 | 126,900 | 356,013 |
| | $332,005 | $355,709 | $375,723 | $1,063,437 |

## STATEMENT OF R.D. KOOB, INTERIM PRESIDENT, NORTH DAKOTA STATE UNIVERSITY

North Dakota State University seeks to establish a $10.7 million research and technology transfer facility in order to expand the development of the state's industrial agricultural sector. The activities this new facility will make possible are the centerpiece of North Dakota's strategy for rural development. We request $5.35 million in federal funds as one-half of the facility's total capital investment requirements of $10.7 million. The state will match these federal dollars on a dollar-for-dollar basis. In addition, North Dakota State University will commit itself to providing both the start-up costs for the new facility, as well as its continuing, annual operating costs.

In the testimony that follows in support of this request, I will be describing needs, conditions and solutions relevant to problems facing North Dakota. I do this because that is the state I know best. However, I believe that solutions to North Dakota problems are just a subset of the solutions for problems facing much of our rural heartland. A successful solution to a North Dakota problem may serve as a model solution for many other states with important contributions to their economy from agriculture.

The economy of North Dakota is heavily based on commodities, agricultural products, oil and coal. But in these days of low agricultural and energy prices, about 50% of the primary income annually in the state is from federal transfer payments, with some 35% from social security, military payroll, etc., and another 15% from federal farm subsidies. This is a burden to the federal government because of the financial drain and to the state because of the lack of control over its own future. Clearly, both would benefit from a diversification of North Dakota's economic base.

Diversification is possible. North Dakota is already home to some successful food processing industries, agricultural equipment manufacturers, and other agriculturally-oriented processing and manufacturing enterprises. History, however, demonstrates that substantial diversification will not occur spontaneously. As a fraction of the total gross state product, manufacturing has remained constant or declined slightly over the past 25 years. And for this to change, North Dakota must use what strengths it has to aggressively intervene in its own future and take positive steps to promote the diversification that will allow it greater control over that future.

One of the strengths that can be brought to bear on the problem is the University community. America's industrialized northeast sector has enjoyed a more rapid recovery than other depressed areas of the country largely because it drew heavily upon its major public and private universities. To speak more generally, the most rapid economic growth in recent years has been in areas with major research and educational facilities. In the past the principal recognition of the power of academic research and technology transfer for solving problems came from the defense establishment, and many of the most powerful research institutions in this country have their present form as a result of heavy investment from the Department of Defense. But with the dawning of the "Information Age," private industry in the industrial states has joined the military in drawing on the research and technological expertise of the universities, to the economic benefit of the entire nation.

Those of us in rural states have much to learn from the experience of our University colleagues in the industrial states. Because agriculture has so long benefited from close ties with land-grant universities, we felt that we were doing all that was necessary. After all, had not the agricultural experiment stations done the research to create the knowledge that made the United States the world's most prolific source of agricultural products? And had we not successfully transferred that knowledge to our farmers through the cooperative extension services? This is true, but we also transferred our knowledge to the rest of the world and their production capabilities are catching up to ours. Now that the capacity exists to feed the world, prices are more dependent on government policy than on productivity.

We in the rural areas must now broaden our scope of effort if we are to survive economically. Agri-processing opportunities utilizing new technologies and the establishment of value-added agricultural enterprises offer North Dakota and its neighboring states opportunities to expand their agricultural economies well beyond their present scope. To achieve this expansion, however, we must conduct applied research aimed at transforming the products of the research laboratory into production technology, then transfer this technology to private industry. Or to put it in summary form, we must establish new capabilities for research and technology training and transfer.

The opportunities to apply these capabilities are numerous. Processes already exist to convert renewable agricultural raw materials into non-food products capable of replacing non-renewable mined products. Or to look at another example, we are developing biodegradable materials capable of substituting for such non-biodegradable oil-based substances as polymers and plastics. Yet again, and crossing over into engineering and computer sciences, the computer has made it possible for us to supply technological help ranging from computer-aided design to the development of more efficient production and management control systems.

In other words, to regain economic viability, we need not abandon our agricultural base, we must build on it. We need to broaden the view of our agricultural economy from that we have traditionally held, where field production increases are the primary goals. We must redefine rural economic development to extend beyond our rich farmlands and into our small cities and towns, creating new employment opportunities for all sectors of our rural society. To do this successfuly, we need to include the perspectives of not only the agricultural researchers, but those of food sciences, the engineer, the computer modeler, the business person, the materials scientist, the management information specialist, and all others who have a stake in tomorrow's economy and a contribution to bring to it.

North Dakota State University is well positioned to participate in this broadened view of the agriculturally based economy. We have the commitment to the land and its people, and we have the intellectual capital to invest. With successful programs in engineering, material sciences, computer science, and business--in addition to our well respected programs in agriculture and food sciences--we have the human resources needed for North Dakota to take a leadership role in industrializing an agricultural base. Through applying these resources, we will be able to provide the intellectual capital needed to transfer our applied research and technology from the academic to the industrial community.

But, of course, intellectual capital alone is not enough. Intellectual capital must be supported by modern facilities and equipment if it is to make a significant difference. And our facilities and equipment fall far short of what is needed.

The facility North Dakota State University is proposing to this Committee will remedy this shortfall. It will enable us to establish a comprehensive industrial agricultural research center oriented toward technology training and transfer. This facility will be furnished with state-of-the-art equipment and will house faculty, researchers, students and visiting private-sector professionals from such varied disciplines as agriculture, engineering, computer and materials sciences and business. This combination of people will help build and deliver the knowledge base necessary to carry us toward a diversified, industrialized economic future built on our traditional agricultural base.

What benefits can be expected from this substantial investment? First, and of greatest importance, is the anticipated impact of the proposed new facility on rural development in North Dakota. The beneficiaries of this enlarged rural development effort are numerous. They include our region's farmers as we develop new food and non-food uses and markets for their products. They include our current and potential entrepreneurs who can take the best of our applied research and technology and use it to create new manufacturing and business enterprises, enterprises that will provide new employment opportunities for the population in our rural communities. They include the state itself as we move from a declining economy to one that is healthy and growing, one whose dependence upon federal transfer payments will be decreased and its contributions to the national wealth increased.

A second important benefit, and one in which NDSU has an understandable interest, is the significantly improved educational opportunities that will be available to our students. Through their active participation in the proposed new research and technology transfer facility these students will graduate and enter the workplace armed with much more than a theoretical background. They will have gained valuable experience directly applicable to the world of work they are about to enter.

A third more general benefit, and one we are confident we are able to provide, will be a demonstration of how the nation's rural states can bring the intellectual capital of their colleges and universities into the rural development equation. The facility we are proposing here will demonstrate the vehicle whereby the applied research and technology developed at the university(s) can play a substantial and far-reaching role in rural economic development.

This is the essence of my testimony and request here today. I have appended details, including costs, of the proposed new facility to the written portion of this testimony. Finally, I would like to thank the Committee for this opportunity to testify and in closing make one last point. The assistance we are requesting here today is appreciable. But it is finite. The benefits to North Dakota and its sister states are far more appreciable. And they are not finite. They will extend into the future and they promise a return on investment many times greater than their cost.

## Proposed NDSU Agricultural Research and Technology Transfer Center

### Purposes, Participating Disciplines, Costs

North Dakota State University's proposed industrial agriculture research and technology transfer center will occupy an 80,000 sq. ft. building in the north central portion of the University's Fargo campus (see attached campus map), conveniently located vis-a-vis the different disciplines involved in this new rural development effort. Its space will be dedicated to research and technology transfer (and training) in the areas of industrial agriculture, agricultural processing and utilization research, and technology transfer in the broadest sense of that term.

This last point is of particular importance to the concept of the proposed new rural development facility. For what it says is that NDSU does not intend to limit its role in rural development to supplying promising research results in industrial agriculture and crop utilization to current and potential entrepreneurs throughout North Dakota and its sister states. Instead, the University intends to provide hands-on assistance to these current and potential entrepreneurs in such critical areas as the application of computer processes to manufacturing and production control, computer-assisted design, and the use of integrated software tools in management. And to this end, the proposed new facility will, on the one hand, provide space to serve industry professionals; and, on the other, house the mainframes and mini-computers comprising the state of North Dakota's Higher Education scientific and academic computer network--equipment which is essential to technology transfer and training in the broad sense described above.

Purposes

Outlined below is a sample of the activities the proposed new industrial agriculture center for research and technology transfer will make possible.

-- Facilitate a multi-disciplinary approach to the development of new value-added industrial agricultural activities.

-- Interdisciplinary research into the development of new in-state, food processing industries and the translation of research results into commercially feasible production technology.

-- Interdisciplinary research into the development of non-food products from agricultural raw materials and the translation of research results into commercially feasible production technology.

-- Transfer of commercially feasible production technology to current and potential entrepreneuers in North Dakota and the other upper great plains states.

-- The provision of real world training to students in translating the results of agricultural research into commercially feasible production technology.

-- Provision of applied research and technical support in product development to current and potential industrial agricultural enterprises in North Dakota and its sister states.

- -- The provision of technical support to the Northern Crops Institute in the promotion of upper great plains crops both in the United States and international markets.
- -- The provision of space and facilities wherein visiting industry professionals can work directly with University professional staff in the solution of manufacturing and production problems and the development of new manufacturing processes.
- -- Planning, assessment, and development of integrated software tools for computer-controlled manufacturing and production processes.
- -- Comprehensive technical assistance including computer-assisted design, in the design of structures, facilities, products, and parts using state-of-the-art computer tools (particularly important to implement manufacturers throughout the state and region).
- -- The provision of state-of-the-art training to students in the application of computer processes to today's industrial enterprises.
- -- The demonstration of a cost-effective model for a reciprocal relationship between a university and the industrial agricultural community in the United States, a model whose outcomes are beneficial to both parties.

Participating Disciplines

By now it is probably apparent that a variety of university departments and disciplines will be participating in the activities of the proposed new industrial agriculture research and technology transfer center. The primary ones are listed below:

- -- Cereal Science & Food Technology
- -- Agronomy
- -- Agricultural Engineering
- -- Computer Sciences
- -- Food Engineering
- -- Business Administration
- -- Agricultural Economics
- -- Engineering Sciences (including manufacturing engineering)
- -- Cooperative Extension Service (as a vehicle for technology transfer)[1]

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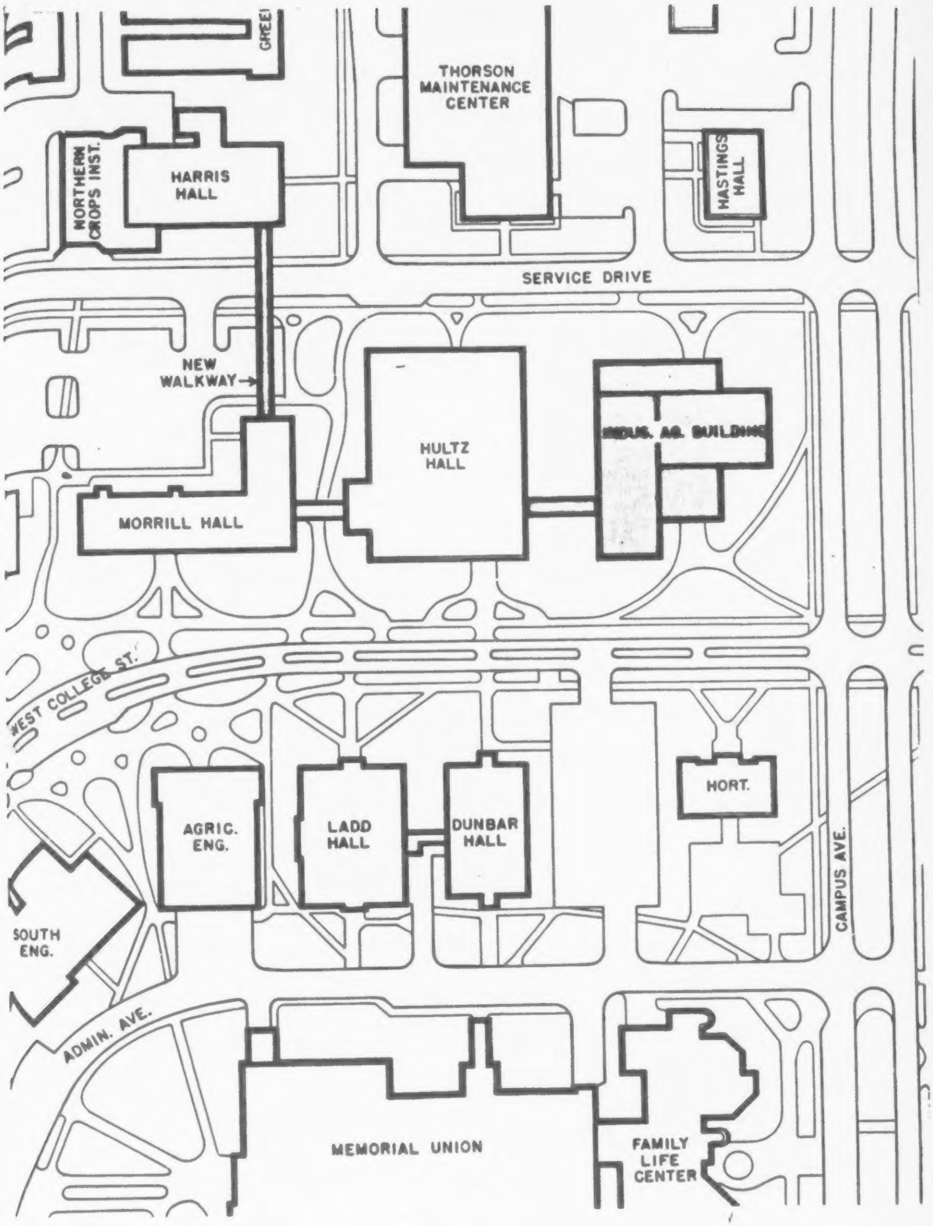
[1] The proposed new center will provide the technical support for a network of industrial extension agents who will interact with the business and entrepreneurial community thoughout the state, and with their colleagues in neighboring states. The long-range intent here is for North Dakota, i.e., NDSU, to house one of the regional technology transfer centers proposed by the Extension Service-USDA. Such a facility would complement the proposed industrial agriculture center perfectly.

Project Costs

| | State | Federal |
|---|---|---|
| Construction costs<br>80,000 sq. ft. x $100 | $4,000,000 | $4,000,000 |
| Equipment<br>Work stations, Communications, Processing and Utilization | 800,000 | 800,000 |
| Subtotal: | $4,800,000 | $4,800,000 |
| Architecture/Engineering fees and Contingency<br>10% of $9,600,000 | 480,000 | 480,000 |
| 3% Agency Set-aside | 75,000 | 75,000 |
| State and Federal Totals | $5,355,000 | $5,355,000 |

Total Project Costs - $10,710,000

Campus Map


THORSON MAINTENANCE CENTER
HASTINGS HALL
NORTHERN CROPS INST.
HARRIS HALL
SERVICE DRIVE
NEW WALKWAY
HULTZ HALL
INDUS. AG. BUILDING
MORRILL HALL
WEST COLLEGE ST.
AGRIC. ENG.
LADD HALL
DUNBAR HALL
HORT.
CAMPUS AVE.
SOUTH ENG.
ADMIN. AVE.
MEMORIAL UNION
FAMILY LIFE CENTER

## STATEMENT OF GERALD J. MOSSINGHOFF, PRESIDENT, PHARMACEUTICAL MANUFACTURERS ASSOCIATION

I appreciate this opportunity to submit a statement on behalf of the Pharmaceutical Manufacturers Association for the hearing record of the Subcommittee in support of the Administration's Fiscal Year 1989 budget for the Food and Drug Administration. PMA represents more than 100 research-based pharmaceutical companies that discover, develop and produce most of the prescription medicines used in the United States.

PMA strongly supports the budget request of $468.5 million for FDA for FY 1989, and urges that the full amount of the request be appropriated by Congress. The request represents a $15.7 million increase over comparable appropriations for the current fiscal year. In addition, under the Public Health Service budget for AIDS-related work, $65.4 million would be allocated to FDA -- $40.4 million for operations, including a planned increase of 127 full-time-equivalent (FTE) positions for a total of 254 positions for AIDS work, and $25 million for a new facility on the campus of the National Institutes of Health.

PMA also strongly supports the Administration's decision not to propose -- as it has in the last 3 years -- that FDA charge user fees for processing New Drug Applications as an offset against appropriations. The approval of new drugs is required by law for the benefit of the public at large. To charge pharmaceutical manufacturers user fees for such a mandatory service would, in reality, be to impose an excise tax on pharmaceutical research and development. Such a tax on industry innovation would do little to improve the new-drug approval process. We urge Congress specifically to prohibit the FDA from charging user fees, just as it has for the last 3 years, to make it absolutely clear that the FDA does not have such authority.

We are encouraged that, under the Administration's FY 1989 budget request, 16 FTE positions would be added for new-drug review for a total of 614 positions, with a related funding increase of $1 million. In the past two years, Commissioner Frank E. Young has identified the need for more medical reviewers as a high priority. The 16 additional professional positions requested in the budget are of critical importance in enabling Commissioner Young and his staff to reduce the extended amount of time it currently takes to approve new drugs.

In 1987, the FDA approved 21 new prescription drugs (New Molecular Entities) and six other products classified by FDA as important biologicals -- which includes vaccines and blood products. Mean approval time for the FDA to review the New Drug Applications was 32.3 months -- down from 34.2 months in 1986. Mean Approval time for the drugs assigned priority based on FDA's initial determination of therapeutic promise was 22.7 months in 1987, down from 32.1 months in 1986.

Several products approved by FDA in 1987 were breakthroughs -- Activase (TPA) to dissolve blood clots, Mevacor to reduce blood cholesterol levels and Retrovir (AZT) for AIDS and AIDS-related complex. A number of other products were approved that represented less dramatic but very real progress -- an oral antibiotic treatment, for example, a refined blood clotting factor to treat hemophilia and two improved drugs for high blood pressure. A record eight orphan drugs were approved last year, and 59 products were designated as orphan drugs, 50 percent more than in any previous year.

FDA has made an intensive effort during the last year to improve the speed and quality of its review of New Drug Applications. Of particular importance is the reorganization of the former Center for Drugs and Biologics into two centers -- the Center for Biologics Evaluation and Research and the Center for Drugs Evaluation and Research. Publication of new FDA regulations regarding the Investigational New Drug (IND) phase of drug development was another step in the effort to streamline the drug-approval process. New procedures were adopted to provide expanded use of investigational new drugs by patients with serious or immediately life-threatening diseases such as AIDS, for which no satisfactory alternative drug exists. And 14 new medical reviewers were added last year, as a result of strong FDA recruiting efforts, which we fully supported.

We are particularly gratified that the FDA's backlog of New Drug Applications (NDAs) and NDA supplements has been reduced. Overdue NDAs -- those under review for more than the statutory deadline of 180 days -- were reduced from 169 in December 1985, to 90 in December 1987.

This improvement must be continued. The research-based pharmaceutical industry is on the verge of dramatic progress in developing new and more effective medicines, spurred by advances in biotechnology. In addition to their other efforts, our companies are working hard to discover and develop drugs to stem the AIDS epidemic -- one of the most serious public-health problems this country has ever faced. Never before have so many companies devoted so many resources in such a short period of time to combat a single disease. Fifty-five companies are developing, or have developed, a total of 77 products to diagnose, prevent or treat AIDS.

Our industry spent a record $5.4 billion last year on research and development, compared to $4.7 billion in 1986. This is almost as much as the National Institutes of Health spent on all biomedical research. Our investment in research and development expenditures rose from 11.7 percent of U.S. sales and exports in 1980 to 15.1 percent in 1987 -- a very high level.

Continued improvements in the FDA drug-approval process, without compromising the need to assure safety and efficacy, are of critical importance in expediting the approval of major new therapies to prevent, cure and treat diseases and chronic illnesses. As stated in FDA's "Fiscal Year 1989 Justification of Appropriation Estimates for Committee on Appropriations":

> "FDA has a direct and major impact upon the quality and cost of health care as a consequence of the roles it plays in the regulation of research on new drugs and in the approval of new drug products for marketing. To the extent that it is successful in implementing these roles in an effective and timely manner, the American public receives benefits."

The drug-approval process has traditionally fostered caution and delay. But delay can cost lives. When drugs are approved in record time, as occurred last year, it shows how quickly the FDA is capable of acting. From the Commissioner's office down through the agency, we sense a new determination to make the system work, and we welcome it.

One additional area we urge this Subcommittee to consider is the adequacy of FDA's facilities. PMA is not, of course, expert on this subject, but we have a very strong impression that FDA's facilities are overcrowded and outdated. Our member companies invest heavily in state-of-the-art facilities to conduct their advanced research and development activities. The Government side in the partnership to bring life-saving drugs to market should not be seriously handicapped by having inadequate facilities.

The FDA budget is one of the most payroll-intensive in the Federal Government, with about 63 percent of the agency's requested FY 1989 appropriations to be used for personnel compensation and benefits. Full staffing of the FDA is absolutely essential for the agency to fulfill its crucial responsibilities to the public.

It is very important, therefore, that FDA's budget request for Fiscal Year 1989 be met. And it is also important that, as in the past, Congress continue specifically to prohibit the FDA from charging user fees for approving new drugs -- a function required by law for the benefit of the general public.

## STATEMENT OF THE SANTA CLARA VALLEY WATER DISTRICT

We would like to describe to the Committee our situation in Santa Clara County, California, how the services of the United States Soil Conservation Service Small Watershed Program (PL-566) are valuable and in fact necessary at the local level and to ask that the Committee support an increased level of funding for that Program. Levels of funding for the Program in recent years, if continued, would eventually achieve needed projects but only on a timetable that extends far past the turn of the century. Levels of funding as represented by the Administration's proposed federal budget for 1989 would virtually kill this valuable watershed protection program altogether.

The Santa Clara Valley Water District provides both flood control and water supply services to most of Santa Clara County, California. Santa Clara County is located along the southerly terminus of San Francisco Bay. Included are some 1300 square miles of area, fifteen incorporated cities, and a population in excess of 1.4 million people. Santa Clara County's economy contributes about 12% of the State of California's gross product and about 1% of the gross national product.

The District flood control program is extensive and vital to the area. We have over 700 miles of streams and rivers within our District; some 300 miles of which are still inadequate to provide needed flood protection. Loss of soils from eroding stream banks is a problem countywide. In 1986, we estimated that damages resulting from a 1% flood event could exceed $620 million. We have further estimated that costs to provide 1% flood protection throughout the District are still in excess of $500 million. Our local revenues are limited such that our projects could not foreseeably be completed unless other assistance is provided. Nevertheless, our program goal is to provide a 90% reduction in flood damage potential from that which exists today by the year 2000. Obviously, this means that much of our capitol improvement program cannot be dependent upon pay-as-you-go financing, or even on the use of long term debt financing. Federal assistance is essential to the success of our flood control program.

The District is currently the local sponsor for eight federal flood control projects; five Army Corps of Engineer projects, and three Soil Conservation Service PL-566 projects. Because of the rigid benefit costs requirements associated with any federal project we have solicited federal assistance only on those District projects that offer the highest benefit to cost ratio. These projects are also those that represent the highest priority for flood relief to the most flood prone areas of the County. Although federal assistance at the reconnaissance and feasibility study levels has been readily provided, the time required to perform such investigations and to secure congressional appropriations for construction has been extremely long. This in turn is very frustrating to the community. We are in a position to spend our limited local revenues on projects that qualify only for local assistance. The projects qualifying for federal assistance are of higher priority, but we cannot proceed with these with present federal program funding levels.

With the passage of the Water Resources Development Act of 1986, Corps of Engineers projects appear to be moving forward in all phases and the future looks considerably brighter. In the case of our three Soil Conservation Service PL-566 projects this, unfortunately, is not the case:

- Our Llagas Creek PL-566 project represents approximately $40 million in federal and local effort and construction is now approximately 60% complete. However, this project dates back to the 1960's when planning was completed and construction began. It continued to suffer from limited federal construction funding of approximately $1 million annually. It is anticipated that without significant changes in annual federal funding for this project completion can not be anticipated prior to about 1996.

- Our Lower Silver Creek PL-566 project was approved for construction by both the House and Senate Agriculture Committees in 1984; however, since that time no money has been provided for construction. With current funding levels we are told not to anticipate completion of this project prior to the year 2005.

- Our third PL-566 project is on Upper Penitencia Creek on which a public hearing will soon be held in conjunction with the feasibility and environmental report. Given the time frame for our Lower Silver Creek project which has priority over Upper Penitencia Creek, it is impossible to be optimistic before the year 2015 in terms of construction completion.

In summary, our three SCS projects are clouded with uncertainty because of continued limited funding by congress for the PL-566 program nationwide and more recently the attempts by the Administration to substantially reduce and ultimately eliminate the PL-566 program. The only way our projects can advance under a reasonable timetable is with a substantial influx of funds to the allotment that California receives each year for their SCS projects. California's long-term allotment needs can only be accommodated if the program nationally is significantly increased. The early completion of these SCS projects is essential to our flood control program. We cannot afford to have this program abolished; on the other hand, we can hardly afford to wait 20 to 30 years for projects that are critically needed and justifiable today.

I would like to speak for a minute on behalf of the California Association of Flood Control Agencies of which many of our members are local project sponsors for PL-566 projects. California, at last count, had some 14 such projects in various stages of planning, design and construction. Currently, seven of these projects, reflecting a total investment of over $132 million in flood control improvements, are under construction. $30 million of this cost is a state/local responsibility. The State and the local sponsors also anticipate cost sharing on another six projects with similar improvements which are now in various stages of planning or design. These projects have total costs of over $76 million and state/local obligations of over $11 million. The State of California and the SCS project local sponsors are prepared to meet these local responsibilities, but simply cannot afford the immense financial burden which would otherwise result should federal assistance continue to be curtailed or terminated. It is our understanding that the estimated backlog is $1.5 billion in PL-566 work nationally. In recent years Congress has appropriated anywhere from $130 to $150 million for the PL-566 program nationwide, yielding a 10-year backlog of unfunded construction. California's backlog is about $50 million and its allotment from those appropriations for all its projects for the last 3 years has been about $3 million, yielding a backlog of 17 years. Only with sufficient appropriations can PL-566 program funding needs be equitably allocated to each state on a project workload basis.

In conclusion, the PL-566 program is drastically under funded. It is urged by the Santa Clara Valley Water District, and by all other flood control agencies in California that Congress confirm the importance of this program and provide appropriate funding. Without that assistance, no state or individual project sponsor within a state can be assured of consistent funding to ensure timely completion of their projects. It is our considered opinion that the Small Watershed Program deserves funding of $300 million per year beginning in FY 1989. Of that amount, watershed construction should be funded at $250 million.

California and Santa Clara County appreciate this opportunity to address your subcommittee on this important subject.

## STATEMENT OF ELAINE ACEVEDO, DIRECTOR OF GOVERNMENT AFFAIRS, SOCIETY OF AMERICAN FLORISTS

The Society of American Florists (SAF) is a trade association representing the entire floral industry. Our 10,000 members include growers, wholesalers, retailers, allied tradespeople and 144 other floral industry trade associations, whose memberships comprise an additional 22,000 businesses.

The floral industry is an industry which receives no direct government subsidies and we are proud of that. The only area in which the government has worked in partnership with the floral industry is in the area of research. Very often, money expended by the government to do research in areas of interest to use has been matched by private funds by the industry. We are concerned to see that funds for that cooperative research in recent years have been eroded because of budgetary problems.

The United States Department of Agriculture, Agricultural Research Service at Beltsville has conducted necessary florist and nursery crops research for more than 40 years. In the late 1940s, the Beltsville staff began research on a wide range of crops that has included pioneering studies in genetics for crop improvement and control of pests and diseases. The floral industry wants to see the Laboratory's beneficial work continue.

Our industry is concerned because 40 years of deterioration has taken its toll on the greenhouses at the Beltsville Agricultural Research Center. While the laboratories and certain other facilities at the center are in good condition and provide invaluable research data, many of the greenhouses are outmoded, deteriorating and energy wasters. The structures are a standard commercial greenhouse design typical of the 1940s. These large structures do not have the small experimental units with associated environmental control required for modern research.

Also, the greenhouses have not been adequately maintained due to a lack of funds. As a result, many are in extremely poor condition with excessive air infiltration, and heating and cooling systems that are unable to maintain acceptable temperatures during the winter or summer.

Our industry requests the subcommittee to appropriate funds in FY89 to renovate the Beltsville facility so that the laboratories are adequate to continue conducting research. The lab is currently working on a wide spectrum of activities that range from applied to basic research.

The Laboratory's pathology and entomology research is important to the floral industry's ability to improve the quality of floral products which will enable our American growers to compete more vigorously with foreign imports. Research is concurrently being done by the Lab on Citrus canker, Gypsy moth and leafminer infestations. The floral industry benefits by getting immediate help where crop losses are occurring as a result of insect pests and diseases. The leafminer has been a recurring pest problem in chrysanthemums and has caused significant economic losses during the past 40 years. The leafminer attacks more than 100 plant species throughout the United States and many parts of the world. In one year, for example, leafminer caused nearly $17 million in damage to one state's chrysanthemum crop. Recognizing the high priority need for intensified leafminer research, the floral industry sponsored three national conferences on the problem and contributed more than $110,000 to research.

Through the development of better methods of disease diagnosis, pathogen elimination and ways to reduce the spread of pests, the floral industry and other agricultural industries can become less reliant on expensive and hazardous chemicals. This becomes of primary concern to our floral industry because pesticides available for our use are becoming harder to acquire; and EPA restrictions are making it difficult for us to continue to rely on chemicals.

The total plan for modernization facilities at Beltsville involves construction of a 50,000 square foot growth chamber facility at a cost of $15 million and a 54,000 square foot greenhouse facility at a costs of $10 million.

However, in view of the many budget cuts that have resulted from Gramm-Rudman, we are asking that only the first stage of this renovation project be funded at this time. We request $3 million be budgeted in FY89 specifically for renovations to the Beltsville Florists and Nursery Crops Laboratory greenhouse structures where research is being conducted by the Laboratory for our industry.

Government has traditionally helped industries by nurturing those that foster employment and economic growth. The 1979 Census of Horticultural Specialties reported on nearly 224,000 workers involved in basic horticultural production; wholesaling and retailing operations and the allied floral industries certainly add many more. Production for 1979 was valued at over $3.2 billion at the grower level; if the industry has kept pace with even farm level inflation since that period, it accounts for at least $4.4 billion in sales today. At retail, this figure is conservatively at least double. Our industry, from all indications, has been one of the few shining stars in the agricultural scene of recent years.

## STATEMENT OF DR. WILLIAM A. LAYCOCK, PRESIDENT, SOCIETY FOR RANGE MANAGEMENT

The Society for Range Management is the only professional society in the United States which deals primarily with rangelands and their resources. These lands, comprising nearly half of the continental U.S., are significant not only for their vast extent, but for the variety of values they hold and produce. Watersheds, wildlife habitat, livestock range, recreation opportunity and scenic vistas - all are rangeland values on both private and public lands. Yet the F.Y. 1989 budget proposal before the Congress, like several which have preceded it, fails to provide adequately for the management and perpetuation of these prized resources.

We urge the Subcommittee's consideration of the following comments and recommendations concerning the budget proposals of USDA agencies managing rangeland programs:

**Research** , despite its basic role in supporting efficient resource management and use, is badly neglected in the budget proposal. To begin bringing this activity into balance with need, we recommend:

For the Cooperative State Research Service: $1,475,000 for "Subtitle M" rangeland research projects. Past funding levels have resulted in funding only about one of every ten valid research grant proposals. With a limit of $80,000, rigorous competition would be maintained while supporting valuable investigations and attracting additional scientists needed to improve rangeland resources technology and knowledge.

For the Agricultural Research Service: $9,000,000 for range management research. The germ plasm research activity should also be funded; it will benefit range research and management over the long term.

**Extension** is essential to the successful application of the conservation provisions of the Food Security Act, and with new initiatives developed by USDA, it can play an increasingly strong role in natural resources conservation nationwide. We recommend:

For the Cooperative Extension Service: $6 million under the Renewable Resources Extension Act to enable meaningful participation by every state, including the western states with major rangeland resources. We recommend Smith-Lever formula programs be financed at $252 million and Federal Administration at least at the FY 88 level of $7,412,000.

**Technical and Financial Assistance** to farmers and ranchers is no less important even though the Food Security Act's impact is major and growing. We consider it essential that the responsible agencies continue gearing up to fully meet the conservation provisions of that law - but not at the expense of established, proven, effective programs. To those ends, we recommend:

For the Soil Conservation Service:

- Funding for Food Security Act implementation as proposed in the budget request.

- $20.4 million (FY 88 level) for the Great Plains Program.
- $475 million for Conservation Operations (or such other amount as will insure that technical and financial assistance programs will be maintained at least at pre-FY 86 levels).
- Within Conservation Operations, $1.5 million special funding to continue new initiatives on rangelands begun in FY 88, including rangeland workshops and publications in 17 states.
- Retention of Range Conservationists in rangeland activities rather than transfer to Food Security Act work.

For the Agricultural Stabilization and Conservation Service: $176.9 million to restore the ACP Program to the FY 1988 appropriated level. We agree that ASCS should be fully funded to meet its considerable responsibilities under the Food Security Act's conservation provisions.

Thank you, Mr. Chairman, for the opportunity to offer our views and recommendations to the Subcommittee.

## STATEMENT OF KARL M. BACKES, PRESIDENT, TEHACHAPI-CUMMINGS COUNTY WATER DISTRICT

My name is Karl M. Backes, and I am president of the Tehachapi-Cummings County Water District. I appreciate your acceptance of this statement for the record urging your support for restoring funds for USDA-Soil Conservation Service water resources programs. My specific concern is the P.L. 566, or Small Watershed Act, program, and the Tehachapi Watershed Project in Kern County, California.

I am pleased to see that the President's Proposed Fiscal Year 88-89 Budget includes funding for continuation of Soil Conservation Service water resources programs for the first time in years. However, the level of funding that is proposed -- $116 million -- is still $70 million less than the amount that Congress authorized for the current fiscal year. That proposed $70 million reduction will effectively reduce funds for projects already under construction, such as the Tehachapi Watershed Project, by about 60 percent. Such a reduction would result in delays and cost increases, not only in terms of inflation, but also in terms of the benefits that are lost because projects are not completed on schedule.

The Tehachapi Watershed Project is currently more than half complete, with the Antelope Unit now functional and providing partial flood protection. Construction of the Blackburn Dam unit is underway this year. The California Soil Conservation Service notes that $1.2 million is needed for the planned second-year phase of construction in FY 88-89. The project is scheduled for completion in FY 89-90, at a total estimated federal cost of about $10.5 million. With a benefit-to-cost ratio of 1.3 to 1, it will provide economic flood and soil erosion protection for the City of Tehachapi and more than 3,000 acres of productive farmland.

The Tehachapi Watershed Project is one of the top priority projects for the California Soil Conservation Service office.

In addition to the Tehachapi-Cummings County Water District, local Tehachapi Watershed Project sponsors include the Kern County Water Agency, the Tehachapi Resource Conservation District and the City of Tehachapi. To date, these local sponsors and local taxpayers have spent about $1.3 million on the project.

I would like to take this opportunity to express our appreciation for your long-time support of the Soil Conservation Service and its watershed protection programs. These projects have proven to be among the most beneficial and cost-effective in the nation, providing real service in areas of real need. We urge your continued support for the national Soil Conservation Service watershed protection programs, and specifically to restore funding to complete those projects already under construction in a timely manner without further delay. If they are not completed, it will be impossible to realize the full benefit from the considerable local and federal expenditures that have already been made.

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